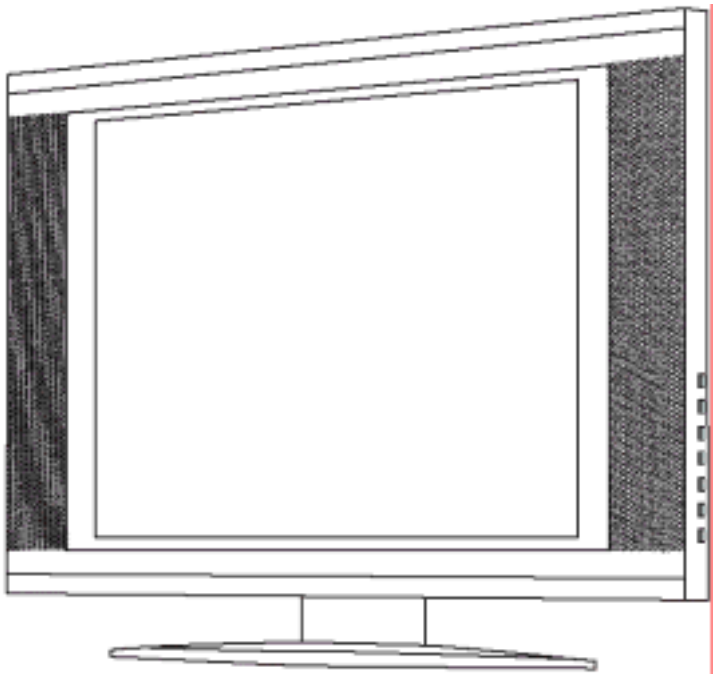
Rolsen

COLOR TFT-LCD TV SERVICE MANUAL

MODEL : RL-20S10

CAUTION !!
BEFORE SERVICING THE TFT-LCD TV,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



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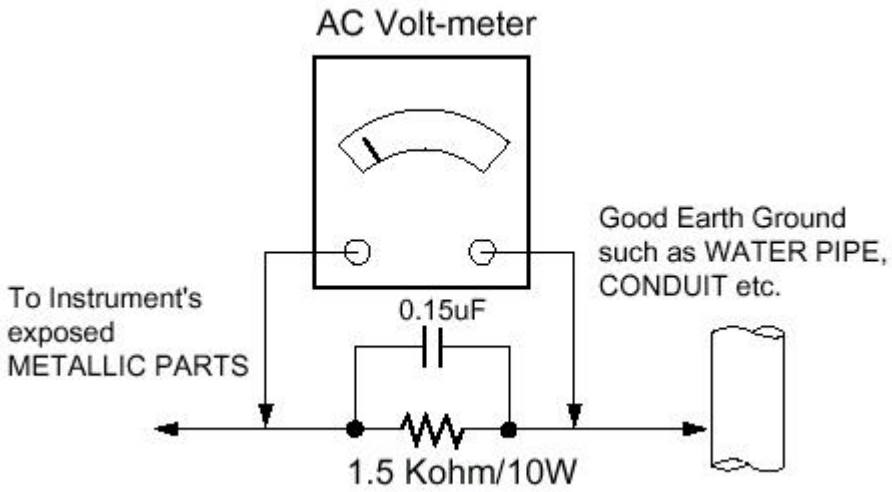
SAFETY PRECAUTIONS

!! Important Safety Notice !!

Many electrical and mechanical parts in this chassis have special safety-related characteristics.
These parts are identified by in the Schematic Diagram and Replacement Parts List.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.
Do not use a line Isolation Transformer during this check.
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug of the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS, which is, corresponds to 0.5mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



SERVICING PRECAUTIONS

CAUTION!!
Before servicing receivers covered by this service manual, read and follow the SAFETY PRECAUTIONS on page 3 of this publication.

General Servicing Precautions
1.Always unplug the receiver AC power cord from AC power source before;
ⓐRemoving or reinstalling any component, circuit board module or any other receiver assembly.
ⓑDisconnecting or reconnecting any receiver electrical plug or other electrical connection.
ⓒConnecting a test substitute in parallel with an electrolytic capacitor in the receiver.
CAUTION!! A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion harzard.
2.Do not spray chemicals on or near this receiver or any of its assemblies.
3.Do not defect any plug/socket voltage interlocks with which receivers covered by this service manual might be equipped.
4.Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead. Always remove the test receiver ground lead last.
5.Do not connect the test fixture ground strap to power supply heatsink in this receiver

Electrostatically Sensitive(ES) Devices
Some semiconductor(solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive(ES) Device.Examples

Circuit Board Foil Repair
Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil th separate from or “lift-off” the board.
The following guidelines and procedures should be flollowed whenever this condition is encountered.

At IC Connections
To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board.(Use this technique only on IC connections.)

1.Carefully remove the damaged copper pattern with a sharp knife.(Remove only as much copper as absolutely necessary.)
2.Carefully scratch away the solder resist and acrylic coating(if used) from the end of the remaining coopper pattern.
3.Bend a small “U” in one end of a small guage jumper wire and carefully crimp it around the IC pin.
4.Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

SPECIFICATIONS

Note: Specifications and others are subject to change without notice for improvement.

1.Scope.
This document is the specification of 20.1” TFT-LCD Color TV.

2.Power
1) Power requirement
DC 15V / 4.5A

2)AC / DC Adapter.
Input Frequency : 50/60㎐ ±3㎐
Input Voltage : AC 100V AC 230V (±10%)
Output Voltage : DC 15V

3)Power cord
Use UL listed and CSA certified detachable power cord type ;SVT, 3-conductors, 18AWG For AC 120V area. Use VDE listed detachable power cord type ;HO5VV-F, 3-conductors, 18AWG for AC 220 240V area.

3.Tuning system
FVS 100

4.Sound output
3W+3Wrms Stereo (Max)

5.Antenna input impedance
VHF / UHF at 75ohm

6.OSD Type (On Screen Display)
Windows type (Center)

7.External in/output
PC/DTV,SCART, Head Phone, S-Video, AV,
Audio In : 0.4Vrms, over 10KΩ
Video In : 1Vp-p, over 75Ω
PC/DTV In: 0.7Vp, over 75Ω

8.Function
CATV/Hyper band
Auto Program
Manual Program
Auto Sleep
Quick view
PSM(Picture Status memory)
SSM(Sound Status memory)

SPECIFICATIONS

9.Receiving RF TV system

NO	Model System	RL-20S10	/	/
1	PAL-B	○	/	/
2	PAL-G	○	/	/
3	PAL-I, I /I	○	/	/
4	PAL-D	○	/	/
5	PAL-K	○	/	/
6	SECAM-B	○	/	/
7	SECAM-G	○	/	/
8	SECAM-D	○	/	/
9	SECAM-K	○	/	/
10	SECAM-K1	○	/	/
11	SECAM-I (6.0)	○	/	/
12	NTSC-3.58 / 4.5	○	/	/
13	NTSC-3.58 / 5.5	○	/	/
14	NTSC-3.58 / 6.0	○	/	/
15	NTSC-3.58 / 6.5	○	/	/
16	NTSC-3.58 / 4.5(5.0)	○	/	/
17	NTSC-4.43 / 5.5	○	/	/
18	NTSC-4.43 / 6.0	○	/	/
19	NTSC-4.43 / 6.5	○	/	/
20	PAL 5.5 / 60Hz	○	/	/
21	PAL 6.0 / 60Hz	○	/	/
22	PAL 6.5 / 60Hz	○	/	/
23	SECAM 5.5 / 60Hz	○	/	/
24	SECAM 6.0 / 60Hz	○	/	/
25	SECAM 6.5 / 60Hz	○	/	/
26	SECAM L / L'	X	/	/
	TOTAL SYSTEM	25	/	/

SPECIFICATIONS

10.Receiving function & Programme

NO	Receiving System	Function	Receiving Channel
1	PAL-B	Reception of broadcast and play-back for Video Tape Recorder	VHF Band NTSC-M (US) : 2-13 NTSC-M (JAPAN) : 1-12 UHF Band NTSC-M (US) : 14-78 NTSC-M (JAPAN) : 13-62
2	PAL-G		
3	PAL- I, I / I		
4	PAL-D		
5	PAL-K		
6	SECAM-B		
7	SECAM-G		
8	SECAM-D		
9	SECAM-K		
10	SECAM-K1		
11	NTSC-M		
12	SECAM-L / L'	Play-back for special Video Tape Recorder	NTSC 3.58/4.5MHz/60Hz only
13	NTSC-4.43 / 5.5		
14	NTSC-4.43 / 6.0		
15	NTSC-4.43 / 6.5		
16	SECAM-I (6.0MHz)		
17	SECAM-L (VIDEO IN)		
18	NTSC 3.58 / 4.5MHz / 50Hz	Play-back for special Video Tape/Video disk player	NTSC 3.58/4.5MHz/60Hz only
19	PAL 5.5MHz / 60Hz		
20	PAL 6.0MHz / 60Hz		
21	PAL 6.5MHz / 60Hz		
22	SECAM 5.5MHz/60Hz		
23	SECAM 6.0MHz/60Hz		
24	SECAM 6.5MHz/60Hz		
25	NTSC-3.58 / 5.5MHz	Play-back for special Video Tape Recorder	
26	NTSC-3.58 / 6.0MHz		
27	NTSC-3.58 / 6.5MHz		

SPECIFICATIONS

11. PC/DTV Mode Scan Frequency & Timing

1)Scan Freq **:** H: 31 56 kHz / V : 56 85㎐

2)Preset Timing Chart

Mode	Resolution	H-Freq(Khz)	V-Freq(Khz)
VGA	640x480	31.5KHz	60Hz
	640x480	37.9KHz	72Hz
	640x480	37.5KHz	75Hz
	640x480	43.3KHz	85Hz
	720x400	31.5KHz	70Hz
SVGA	800x600	35.1KHz	56Hz
	800x600	37.9KHz	60Hz
	800x600	48.1KHz	72Hz
	800x600	46.9KHz	75Hz
	800x600	53.7KHz	85Hz
DTV	1920x1080i	33.8KHz	60Hz
	1280x720i	45KHz	60Hz
	720x480p	31.5KHz	60Hz

Note!! :

ⓐ If the set is cold, there may be a small “flicker” when the set is switched on. This is Normal, there is nothing wrong with the set.

ⓑ if possible, use the VESA 640x480 PC video mode to obtain the best image quality for your LCD TV. If used under the other resolutions, some scaled or processed pictures may appear on the screen.

ⓒ some dot defects may appear on the screen, like Red, Green or Blue spot. However, this will have no impact or effect on the monitor performance.

12. TFT – LCD Panel Character

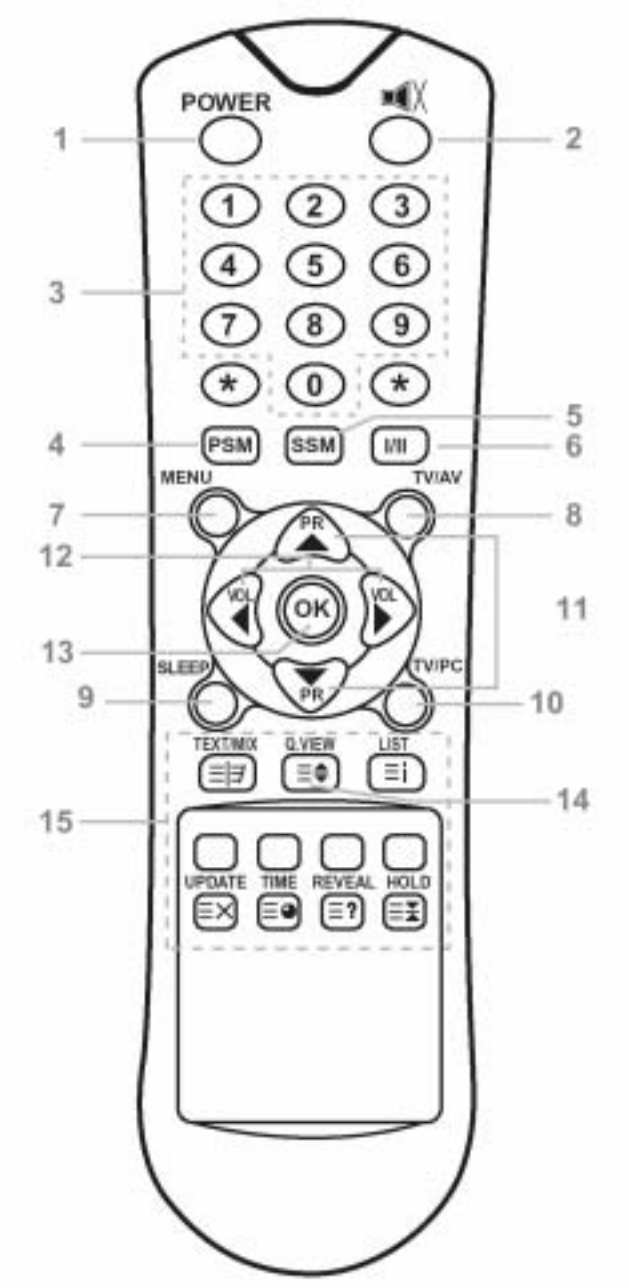
1) Feature

Size :20.1" Diagonal (51Cm)
LCD Type :Color Active Matrix TFT
Pixel Pitch :0.6375 mm x 0.6375 mm
Pixel Format :640x480 Pixels, RGB Stripe
Active Video Area :408mm(H) x 306mm(V)
Surface treatment :Anti-Glare, Hard coating(3H)
Response Time(Typ) :25mS(Typ)
Viewing Angle<CR≥10> : Hor [Left/Right] → 88Deg (Typ) / 88Deg (Typ),
Ver [High(Top)/Low(Bottom)] → 88Deg (Typ) / 88Deg (Typ)
Luminance(Typ) : 450 cd/㎡(Typ)
Contrast Ratio(Typ) : 350(Typ)
Display Color : 16,777,216 Color
Back Light : 6 CCFL

CONTROL DESCRIPTIONS

All the function can be controlled with the remote controller.
Some functions can also adjusted with the buttons on the controls on the TV front panel.

Remote controller
Note !! : Before you use the remote controller, please install the batteries.



1.POWER:
Turns the TV on from standby or off to standby mode.

2.MUTE:
Turns the sound on and off

3.NUMBER buttons**:**
Select Programme numbers.

4.PSM (**P**icture **S**tatus **M**emory):
Recalls your preferred picture setting.

5.SSM (**S**ound **S**tatus **M**emory):
Recalls your preferred sound setting.

6. I / II:
Selects the language during dual language broadcast. / Selects the sound output.

7.MENU:
Displays a main menu.

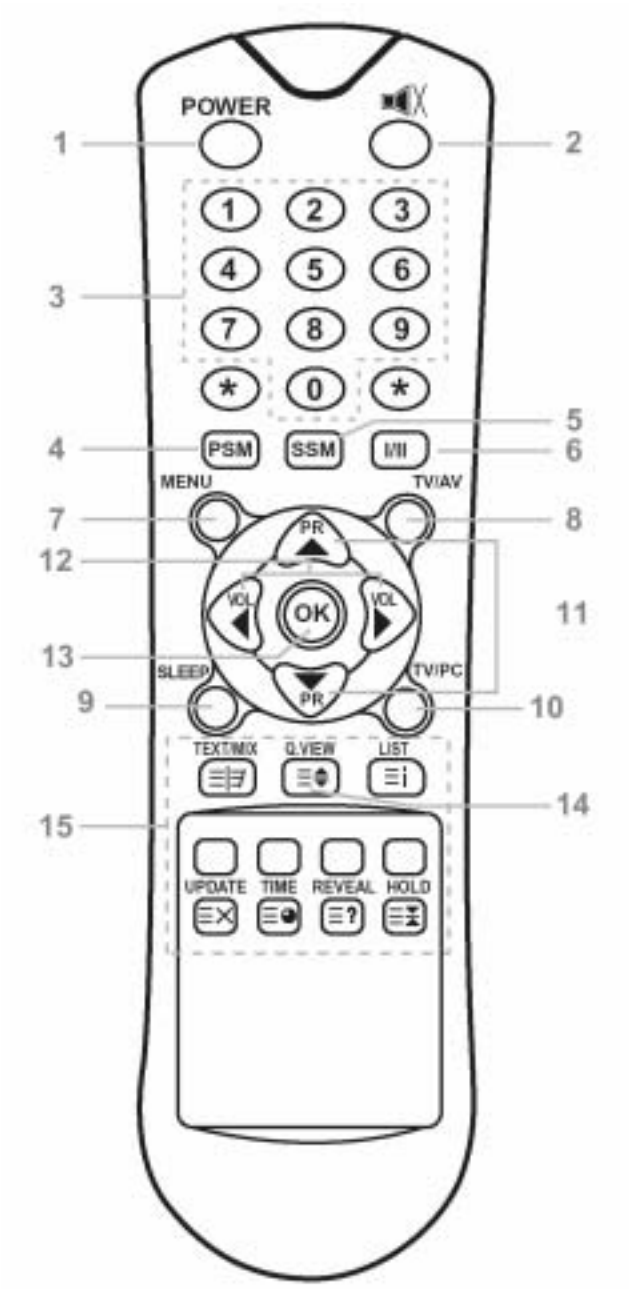
8.TV / AV:
Selects input signal source.
/ Clears the menu from the screen.

9.SLEEP:
Sets the sleep timer.

10.TV / PC :
Selects TV or PC mode directly.

CONTROL DESCRIPTIONS

Remote controller
Note !! : Before you use the remote controller, please install the batteries.



11.PR ▲▼ (Programme Up/Down):
Selects a next programme or a menu item.

12.VOL ◀▶ (Volume Up/Down):
Adjusts the sound level or a menu Setting.

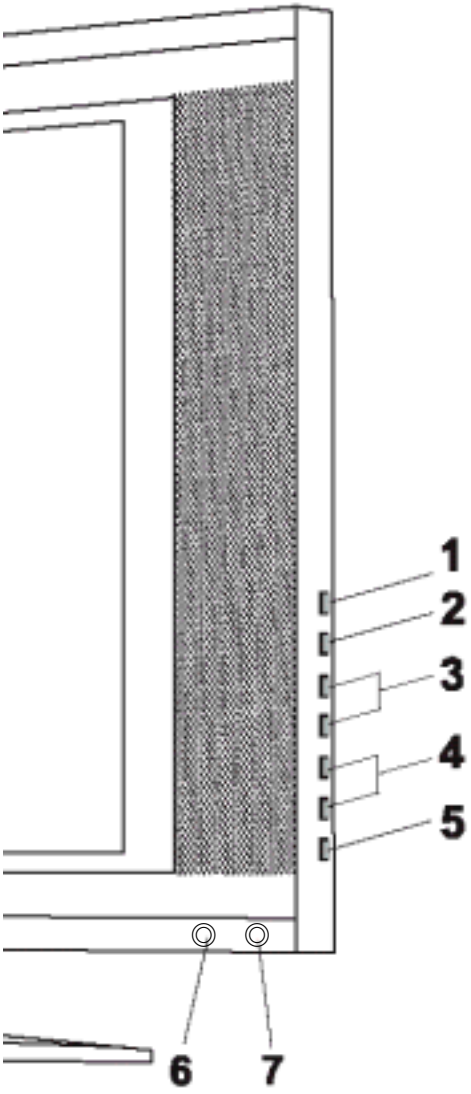
13.OK:
Accepts your selection or displays the current mode.

14.Q.VIEW:
Returns to the previously viewed Programme.

15. TELETEXT Buttons**:**
These buttons are used for Teletext.
For further details, see the Teletext selection.

CONTROL DESCRIPTIONS

Controller of Panel



< SIDE VIEW>

1.ON/OFF:
Switches TV set on or off.

2.MENU:
Display a menu.

3.+ PR - (Programme Up/Down):
Selects a programme or a menu item.

4.+ VOL -(Volume Up/Down):
Adjusts the volume.
Adjusts menu settings.

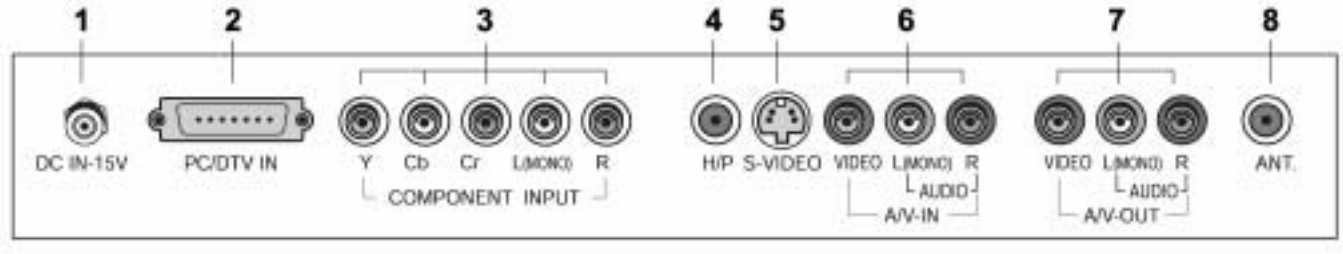
5.TV/AV:
Selects input signal source.
Clears the menu from the screen.

6:POWER INDICATOR:
Illuminates red when the TV is in-power standby mode.
Illuminates green when the TV is-switched power on mode.
Illuminates amber when the TV is-switched power saving mode.

7.REMOTE CONTROL SENSOR:
Accepts the IR signal of remote controller.

EXTERNAL IN/OUT PORTS

External IN / OUT



1.DC15V: Connection point for the external DC power supply.

2.PC/DTV IN: PC or STB D-type connector Input.

3.COMPONENT IN (Y,Cb,Cr): Component video & audio input.

3.COMPONENT IN (L, R): Component audio input.

4.H/P: Stereo Headphone output.

5.S-VIDEO: S-video input.

6.A/V-IN: VCR video & audio input.

7.A/V-OUT: VCR video & audio output.

8.ANT: CATV/AIR RF cable input.

ADJUSTMENT

1.Safety Precautions

1. Never disconnect leads while the TV receiver is on.
2. Don't short any portion of circuits while power is on.
3. The adjustment must be done by the correct appliances. But this is changeable in view of productivity.
4. Unless otherwise noted, set the line voltage to 230Vac 10%, 50Hz ./ 110Vac, 60Hz

2.Test Equipment required

1. RF signal generator (with pattern generator)
2. Multi meter (volt meter)
3. Oscilloscope
4. LCD Color analyzer

3.RF AGC (Automatic Gain Control) Adjustment

Note!! Adjust a RF AGC of world standard tuner only.
2 in 1 tuner need not AGC adjust.

The RF AGC was aligned at the time of manufacture for optimum performance over a wide range conditions. Readjustment of RF AGC should not be necessary unless unusual local conditions exist, such as ;

1) Programme interference in a CATV system.
2) Picture bending and/or color beats, which are unusually due to excessive RF signal input when the receiver is too close to a transmitting tower or when the receiver is connected to an antenna distribution system where the RF signal has been amplified. In this case, the input signal should be attenuated (with pad or filter) to a satisfactory level.
3) Picture noise caused by "broadcast noise" or weak signal. If the broadcast is "clean" and the RF signal is at least 1mV (60dBu), the picture will be noise free in any area.

Adjusting RF AGC to one end of rotation will usually cause a relatively poor signal to noise ratio; Adjusting to the other end of rotation will usually cause a degradation of over load capabilities resulting in color beats or adjacent Programme interference.

Adjustment Note!!

1. Connect RF signal (65dB± 0.5dB) and turn on the TV.
2. Press MENU buttons on TV set and Remote Controller at the same time to get into SVC mode.
3. Press YELLOW button on the Remote Controller several times to find AGC.
4. Press Volume UP/DOWN button until the AGC Voltage is the same as the Table below.
5. Press OK button to memorize the data.
6. Press TV/AV button to exit SVC mode.

ADJUSTMENT

4.SVC Data Adjustment

NOTE!! When the EEPROM has been replaced, the SVC data should be restored as the function of individual system and specification.

1) Press 5 Seconds MENU buttons on both TV set and Remote Controller at the same time to get into SVC mode.
2) Press the Yellow button several times to find SVC Data.
3) Input the corresponding SVC data referring to Table below with the Volume Up/down key.
4) Press the OK button to memorize the data.
5) Press TV/AV button to exit SVC mode

5.SVC Data Table

PAGE	ITEM	VALUE1	VALUE2	REMARK
DATA 1	AGC	20		Variable Data(0-31)
	RD	80		PC Contrast Coefficient-RED(0-255)
	GD	80		PC Contrast Coefficient-GREEN(0-255)
	BD	80		PC Contrast Coefficient-BLUE(0-255)
	RO	32		PC Brightness Coefficient-RED(0-63)
	GO	32		PC Brightness Coefficient-GREEN(0-63)
	BO	32		PC Brightness Coefficient-BLUE(0-63)
	S-B	20		PC Sub-Brightness(0-31)
	PC CP	0		PC Charge Pump(0-7)
	50 PR *			* means current program NO.
DATA 2	FP	21		FM Prescaler(0-127)
	NP	89		NICAM Prescaler(0-127)
	SP	50		SCART Prescaler(0-127)
	S1 VOL	105		SCART1 Volume(0-127)
	S2 VOL	105		SCART2 Volume(0-127)
	50 PR *			* means current program NO.
DATA 3	200PR	0	0	100PR
			1	200PR
	TEXT	1	0	Not apply to TEXT
			1	Apply to TEXT
	TOP	1	0	TELETEXT TOP OFF
			1	TELETEXT TOP ON
	SCART	0	0	Apply to COMPONENT
			1	Apply to SCART
	ACMS	1	0	Not apply to ACMS
			1	Apply to ACMS
	CH+AU	0	0	Used except for CHINESS or AUSTRALIA
			1	Used CHINESS or AUSTRALIA
	SYS	2	0 BG/I/DK	
			1 BG/I/DK/L	
			2 BG/I/DK/M	
	50 PR *			* means current program NO.
	106	Opt 1		Translate HEX into DEC(DATA3VALUE1)

ADJUSTMENT

5-1.SVC Data Table

PAGE	ITEM	VALUE1	VALUE2		REMARK
DATA 4	DUAL	0	0		Not apply to DUAL option
			1		Apply to DUAL option
	MONO	0	0		Not apply to MONO option
			1		Apply to MONO option
	A2 ST	1	0		Not apply to NICAM STEREO option
			1		Apply to NICAM STEREO option
	VOL	1	0		Sound curve option 1
			1		Sound curve option 2
	AV1	1	0		Not apply to YUV / SCART
			1		Apply to YUV OR SCART
	KEY	0	0	6-KEY	Key option
			1	4-KEY	
	LANG	2	0	ENG ONLY	ENGLISH ONLY
			1	EU-5EA	ENGLISH/GERMAN/FRANCE/ITALY/ SPAIN
			2	EU CIS	EU-5EA + CIS
			3	E+CHINA	ENGLISH + CHINESS
			4	E+HUNGARY	ENGLISH+ HUNGRAY
			5	RESERVED	
			6	RESERVED	
			7	RESERVED	
	T-LAN	6	0	WEST EU	WEST EU U.K/GERMAN/FRANCE/ ITALY/SPAIN/SWEDEN/CZECH Rep./NORWAY etc
			1	EAST EU1	POLAND/SLOVENIA/ROMANIA etc
			2	TURKEY EU	TURKEY
			3	EAST EU2	HUNGRY/SERVIA
			4	CYRILLIC1	ESTONIA
			5	CYRILLIC2	ESTONIA
			6	CYRILLIC3	RUSIA/UKRAINE/ESTONIA/CROATI A/KAZAKHSTAN
			7	TURK GRE1	
			8	TURK GRE2	
			9	TURK GRE3	TURKEY/GREECE
			10	ARAB ERA	
			11	ARAB ENG	ARAB CULTURE
			12	ARAB HEB1	
			13	ARAB HEB2	ARAB/HEBREW
			14	FARS ENG	PARSI
			15	FARS FRA	
			16	FARS ALL	
	50 PR *				* means current program NO.
	57	Opt 2			Translate HEX into DEC(DATA4)

ADJUSTMENT

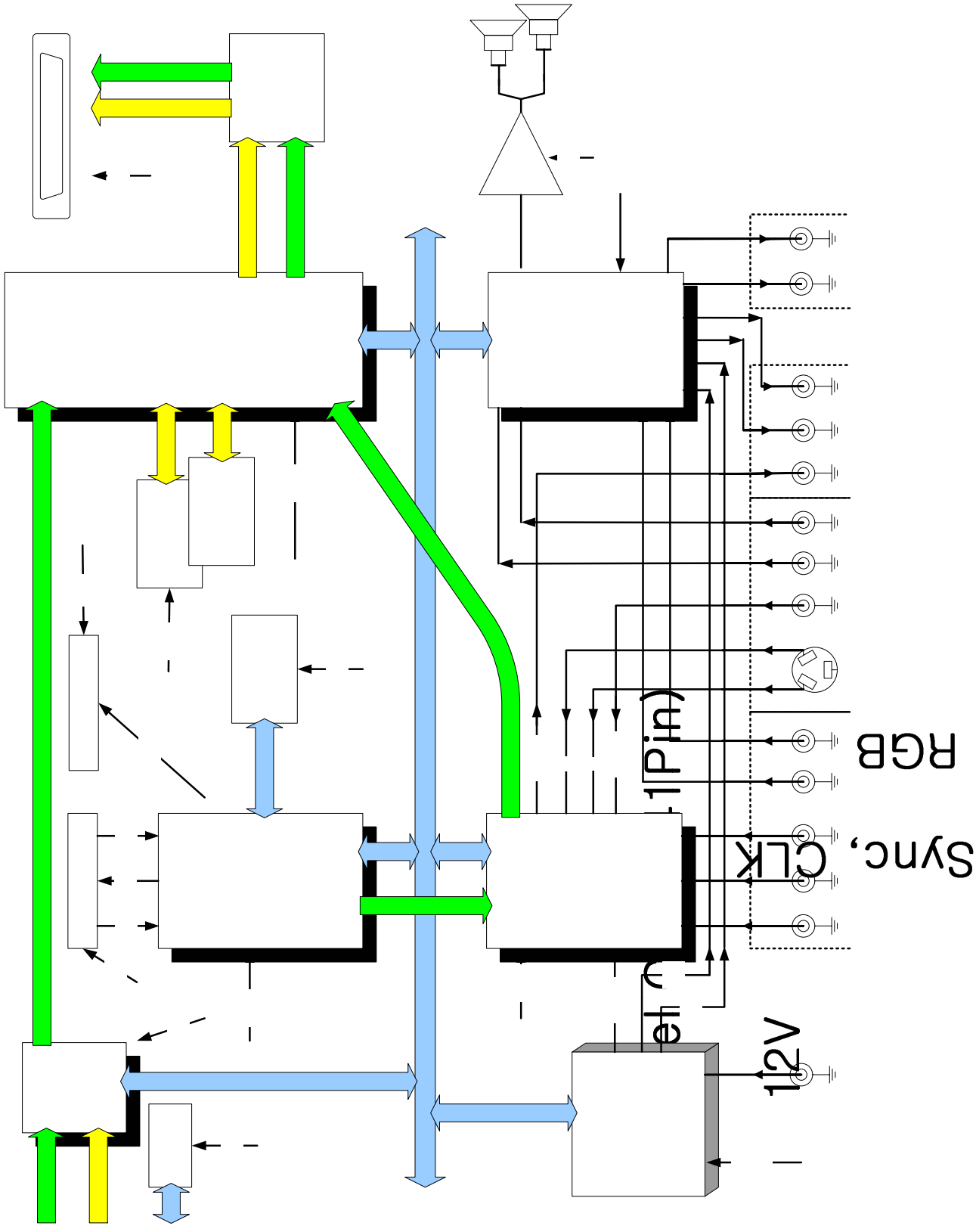
6.AGC Adjustment (SVC Data 1)
Note!! Adjust a RF AGC of world standard tuner only.
2 in 1 tuner need not AGC adjust.

Test point : AGC pin of Tuner Adjust : Remote Controller

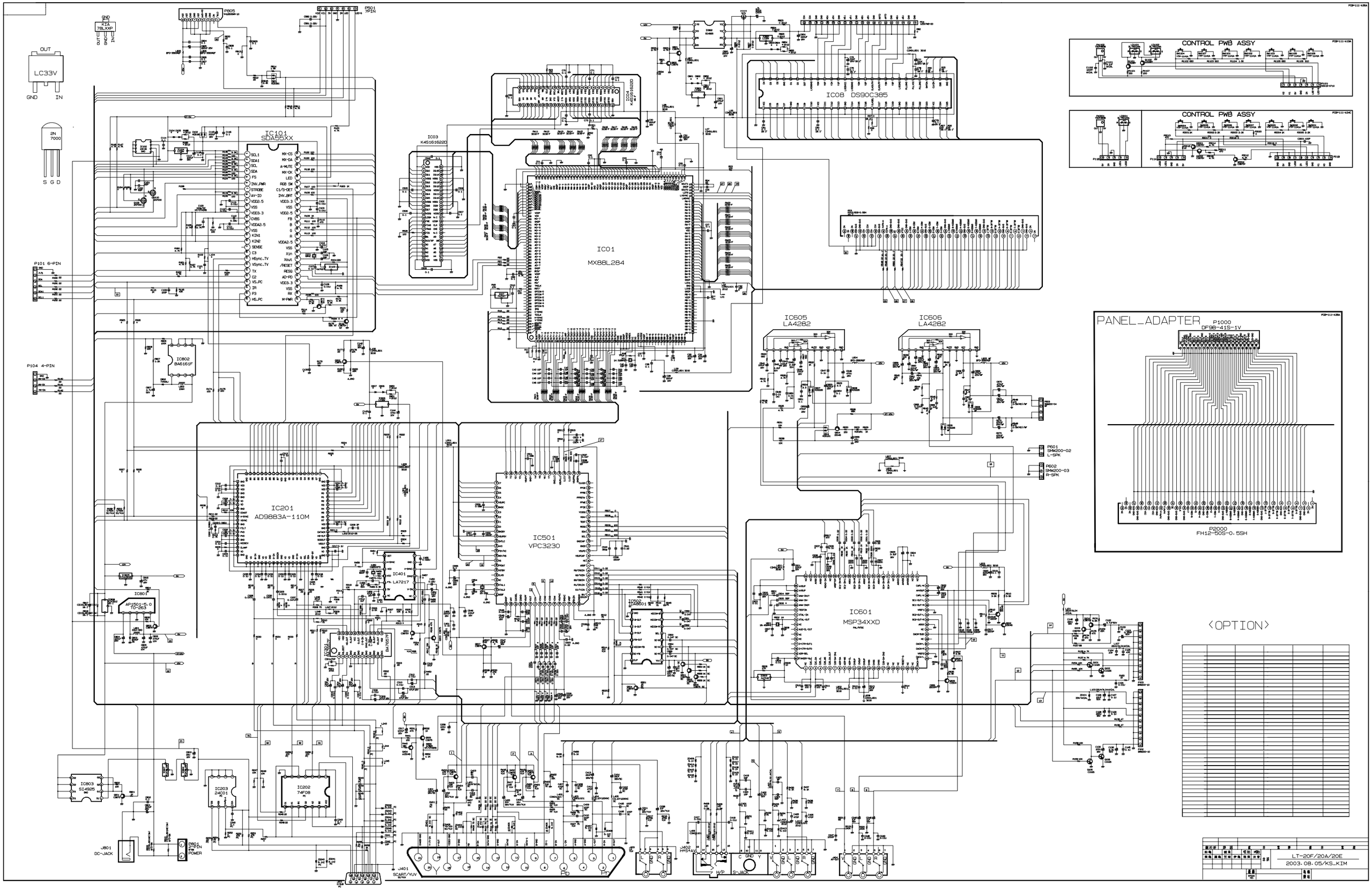
1) Connect RF signal (65±, 0.5dBμV) and tune on the TV.
   ➔ Standard adjustment programme
   - 07CH (fr_f = 175.25MHZ)
2) Press 5 seconds MENU buttons on TV set and Remote controller at the same time to get into SVC Data.
3) Press the Programme up/down button on the Remote Controller several times to find AGC??
6) Press the volume up/down button until the AGC voltage is the same as Table below.
7) Press **OK** button to memorize the data.

BLOCK DIAGRAM

Block Diagram



SCHEMATIC DIAGRAM



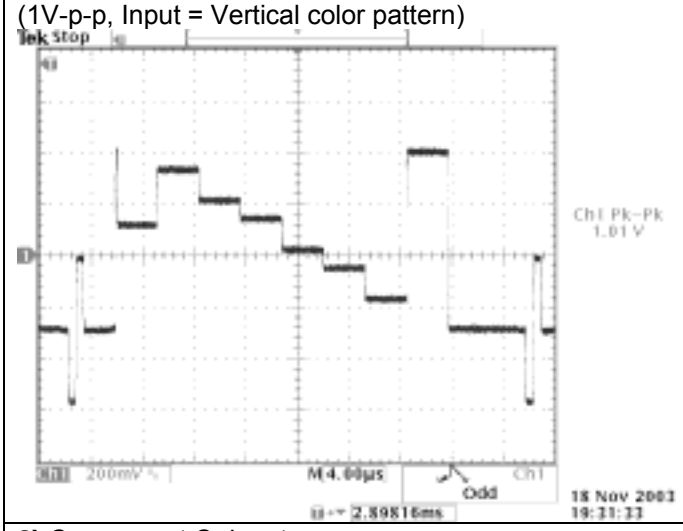
LT-20F/20A/20E	
2003.08.05/KS_KIM	

WAVE FORM

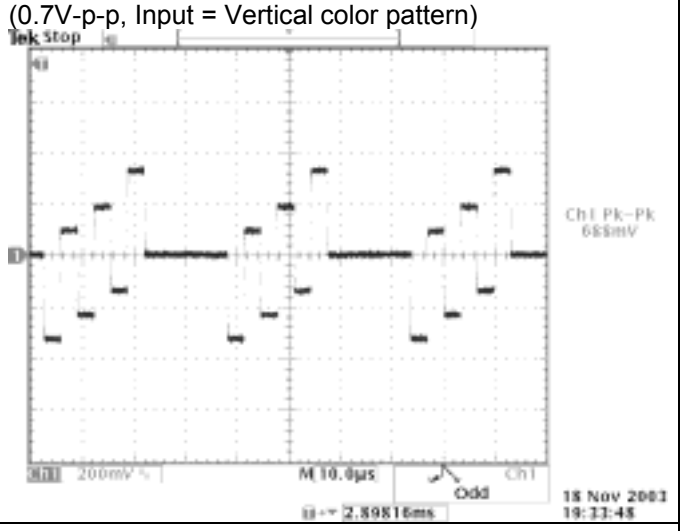
NOTE!!:ⓐVideo = Gray scale pattern input / Audio = 1Khz input at volume step 40.

ⓑYou can find number from Schematic Diagram

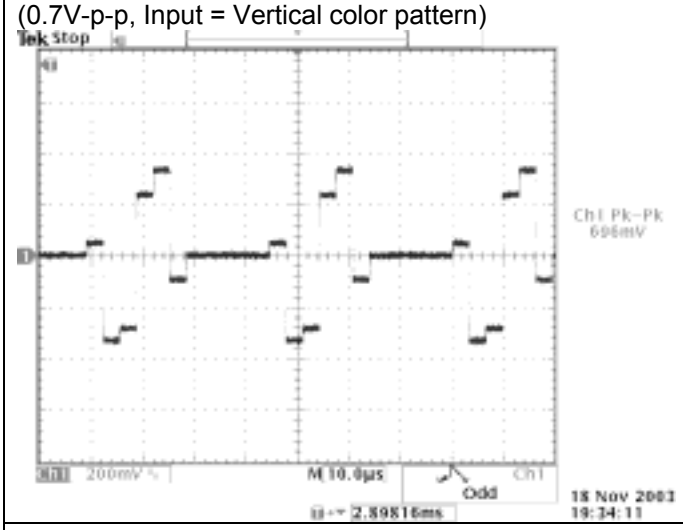
1)Component Y input,
(1V-p-p, Input = Vertical color pattern)



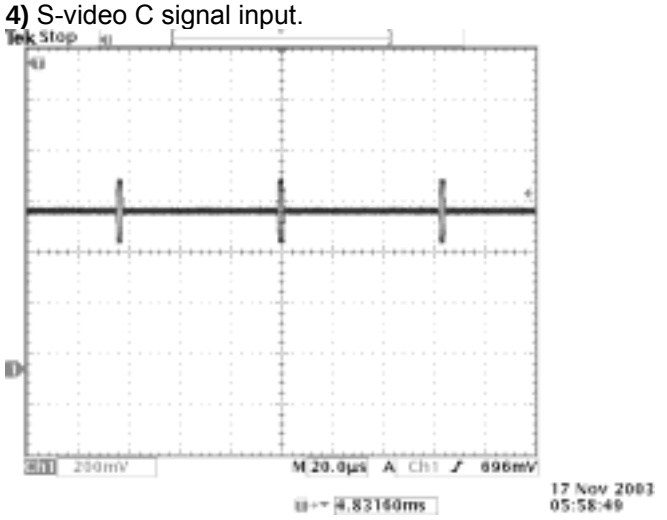
2)Component Cb input,
(0.7V-p-p, Input = Vertical color pattern)



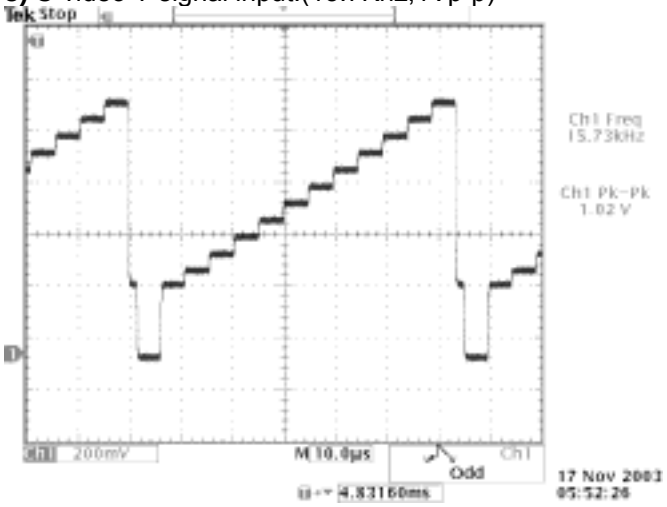
3) Component Cr input,
(0.7V-p-p, Input = Vertical color pattern)



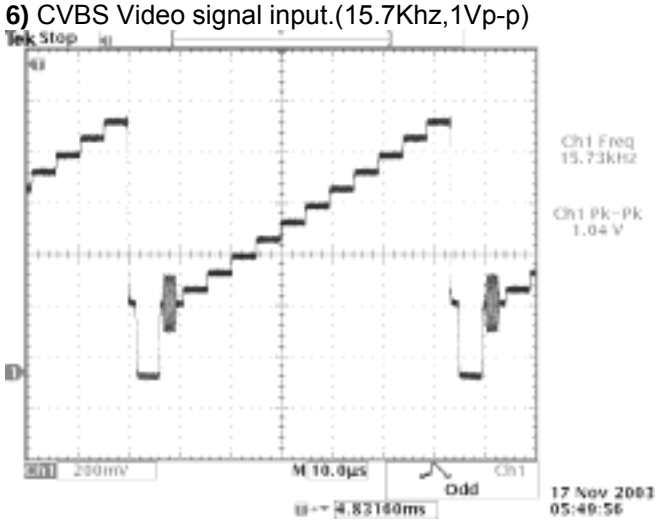
4) S-video C signal input.



5) S-video Y signal input.(15.7Khz,1Vp-p)



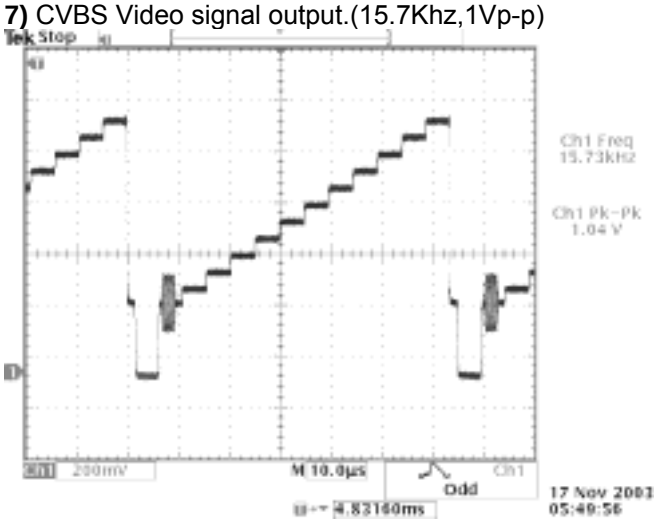
6) CVBS Video signal input.(15.7Khz,1Vp-p)



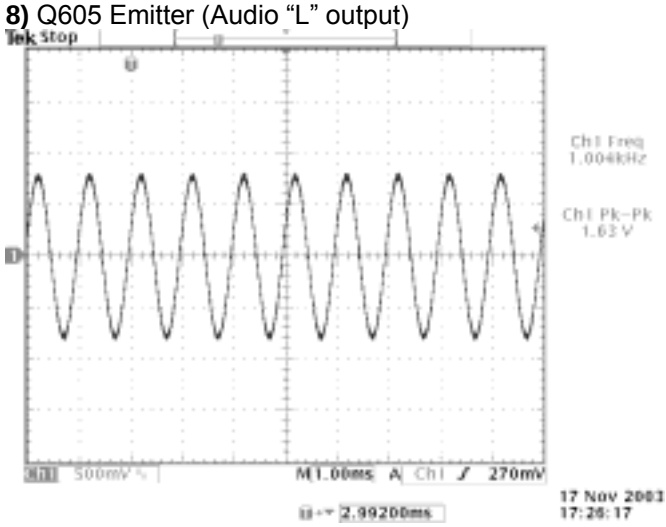
WAVE FORM

NOTE!!: Video = Gray scale pattern input / Audio = 1Khz input at volume step 40.

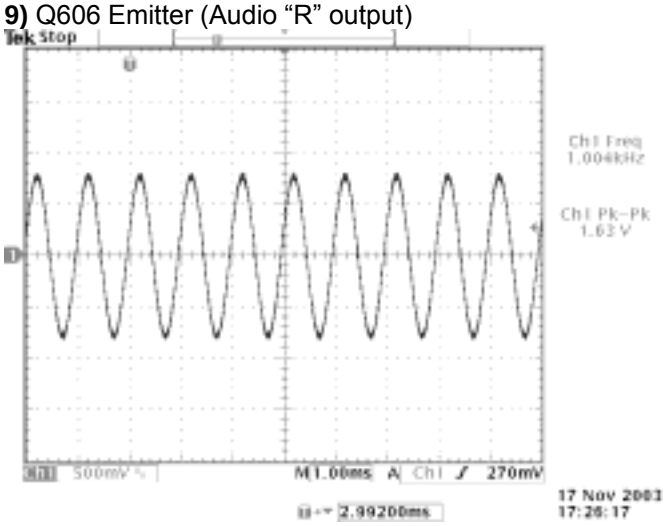
7) CVBS Video signal output.(15.7Khz,1Vp-p)



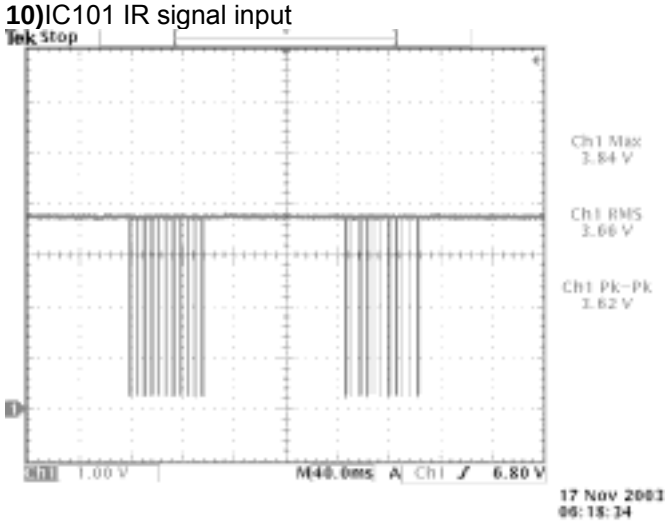
8) Q605 Emitter (Audio "L" output)



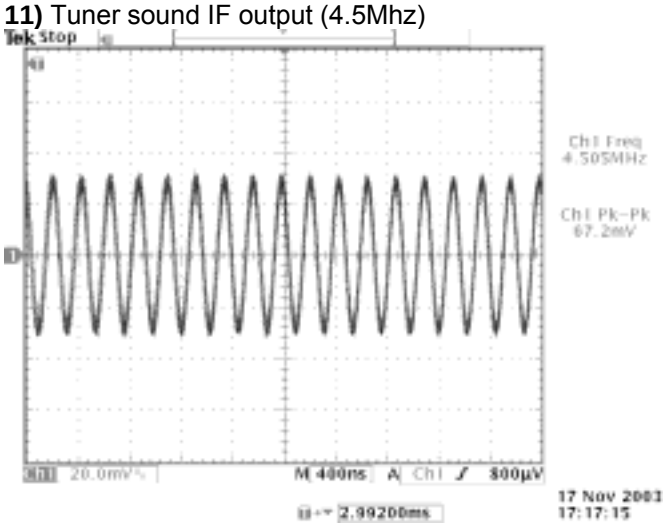
9) Q606 Emitter (Audio "R" output)



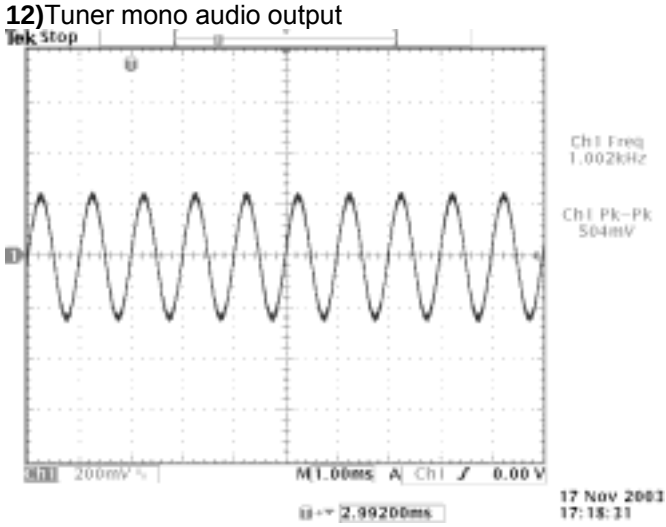
10)IC101 IR signal input



11) Tuner sound IF output (4.5Mhz)



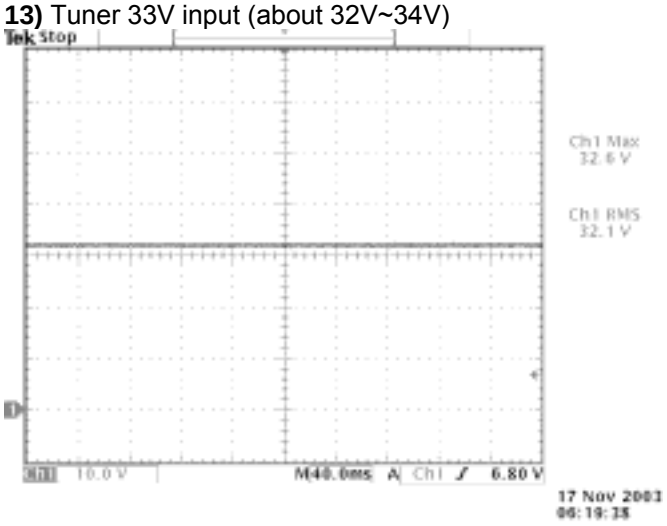
12) Tuner mono audio output



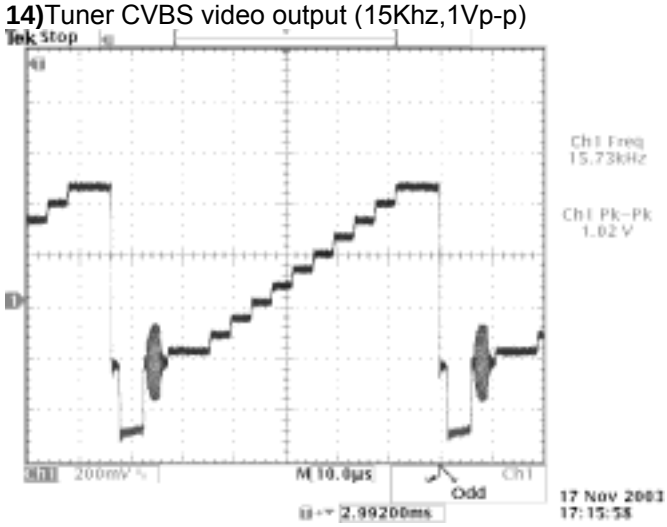
WAVE FORM

NOTE!!: Video = Gray scale pattern input / Audio = 1Khz input at volume step 40.

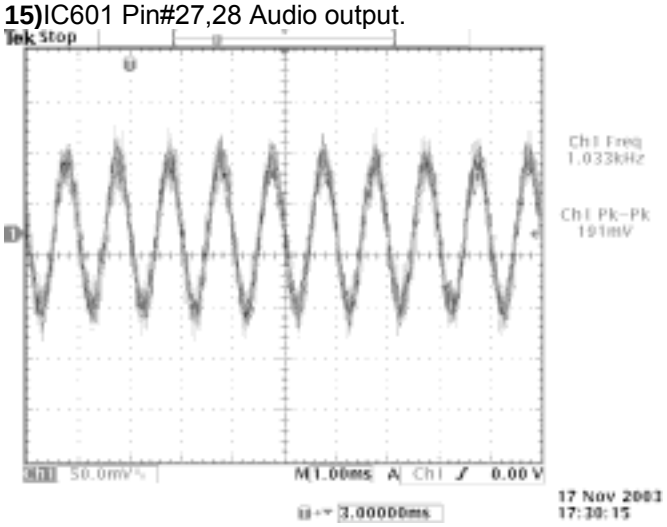
13) Tuner 33V input (about 32V~34V)



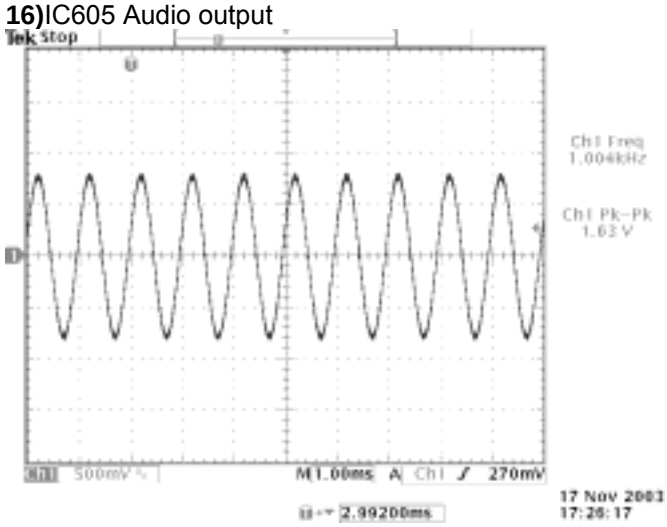
14) Tuner CVBS video output (15Khz,1Vp-p)



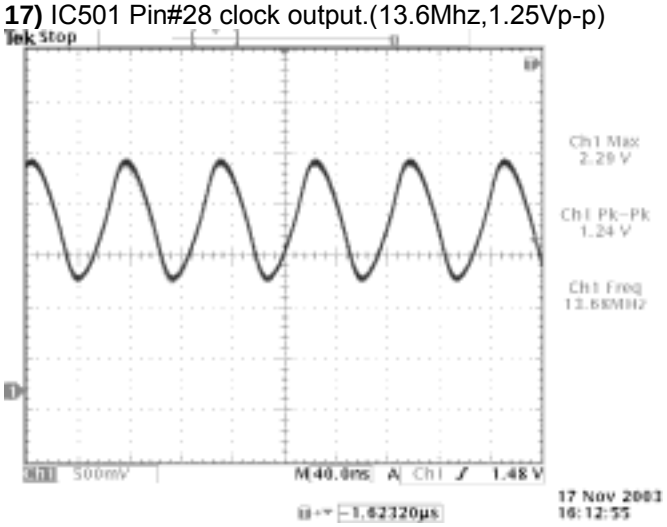
15)IC601 Pin#27,28 Audio output.



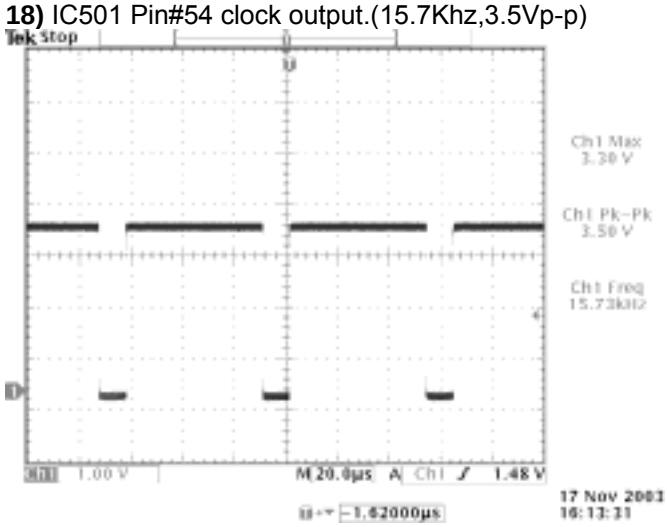
16)IC605 Audio output



17) IC501 Pin#28 clock output.(13.6Mhz,1.25Vp-p)



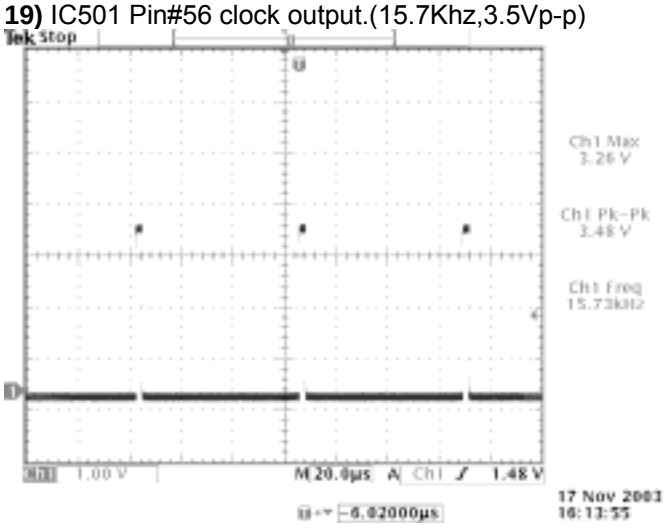
18) IC501 Pin#54 clock output.(15.7Khz,3.5Vp-p)



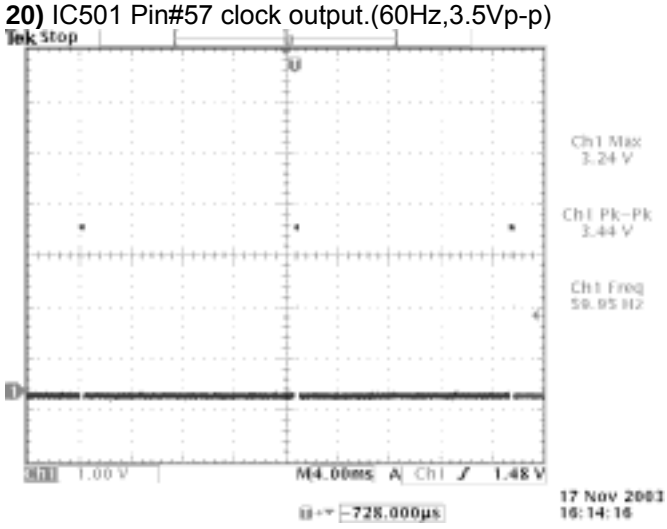
WAVE FORM

NOTE!!: Video = Gray scale pattern input / Audio = 1Khz input at volume step 40.

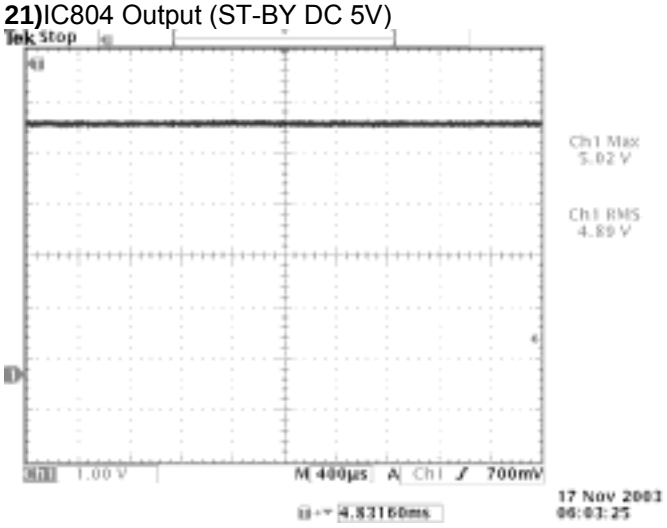
19) IC501 Pin#56 clock output.(15.7Khz,3.5Vp-p)



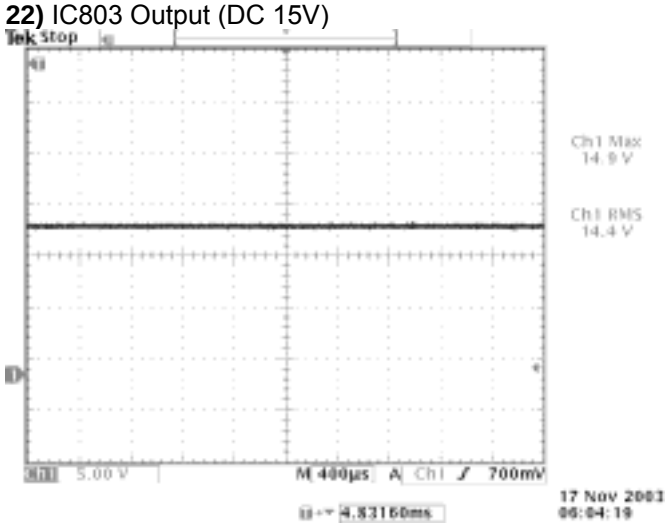
20) IC501 Pin#57 clock output.(60Hz,3.5Vp-p)



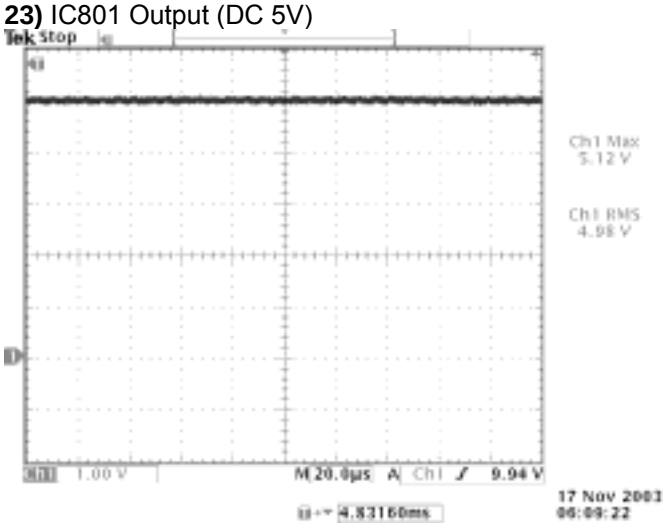
21)IC804 Output (ST-BY DC 5V)



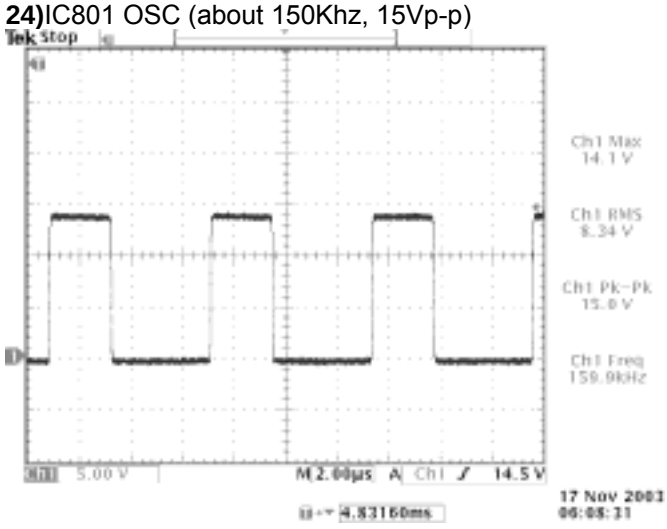
22) IC803 Output (DC 15V)



23) IC801 Output (DC 5V)



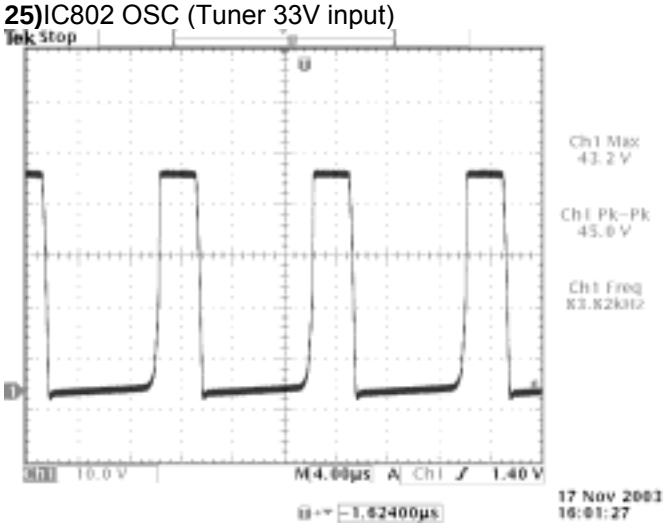
24)IC801 OSC (about 150Khz, 15Vp-p)



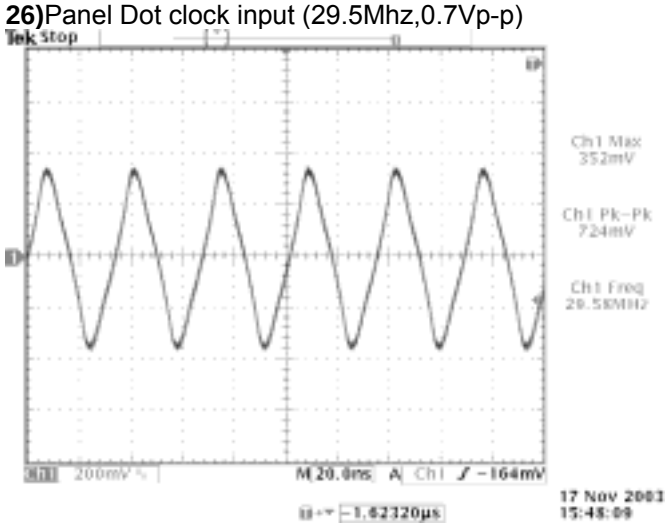
WAVE FORM

NOTE!!: Video = Gray scale pattern input / Audio = 1Khz input at volume step 40.

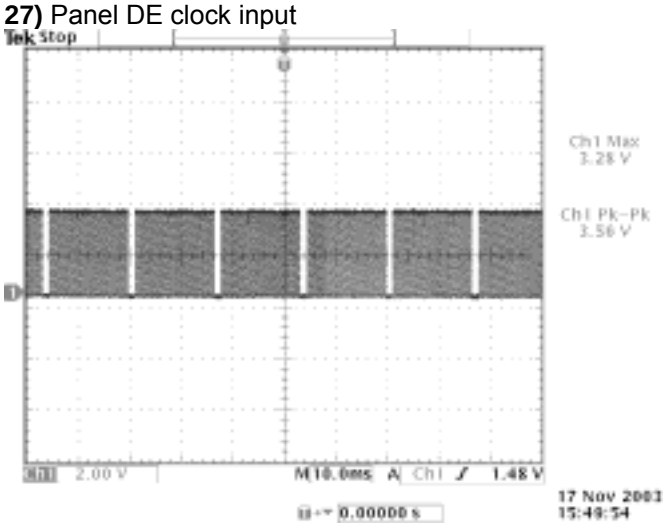
25)IC802 OSC (Tuner 33V input)



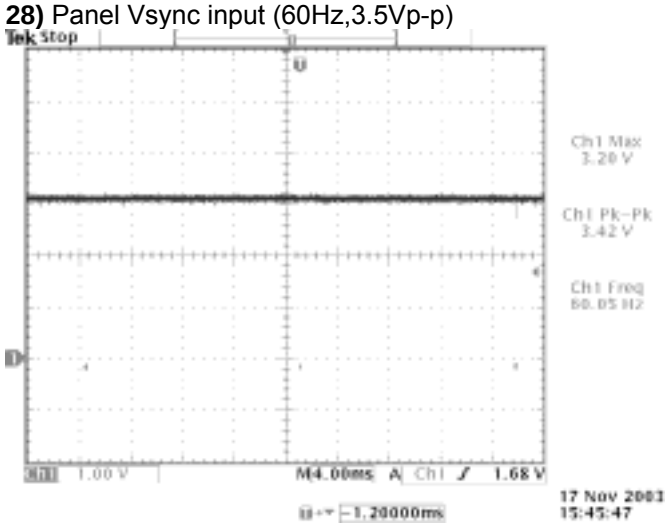
26) Panel Dot clock input (29.5Mhz,0.7Vp-p)



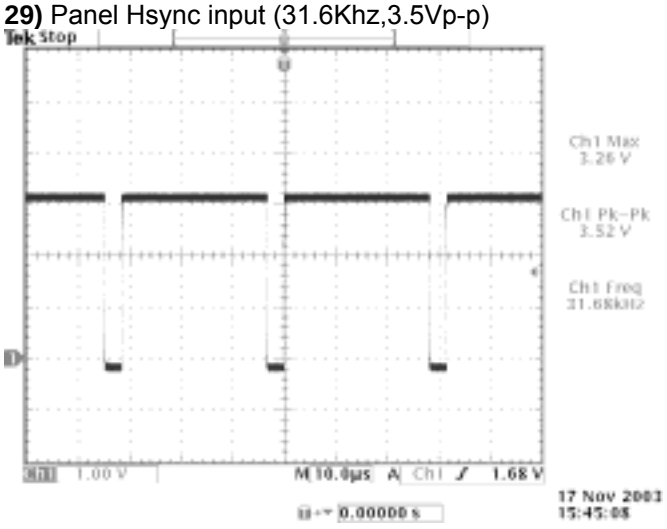
27) Panel DE clock input



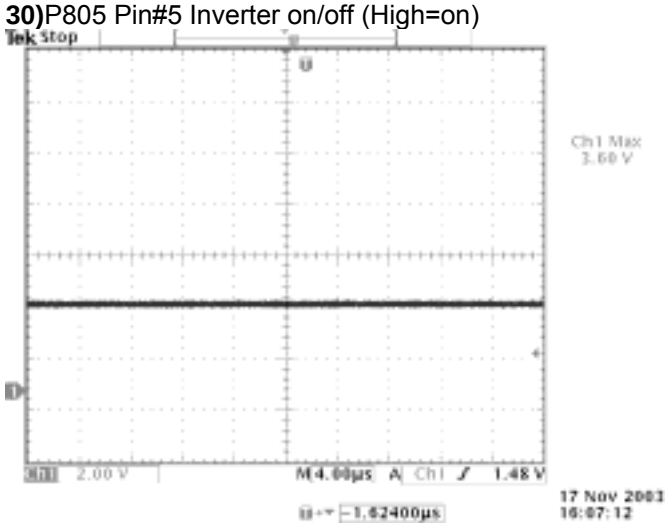
28) Panel Vsync input (60Hz,3.5Vp-p)



29) Panel Hsync input (31.6Khz,3.5Vp-p)



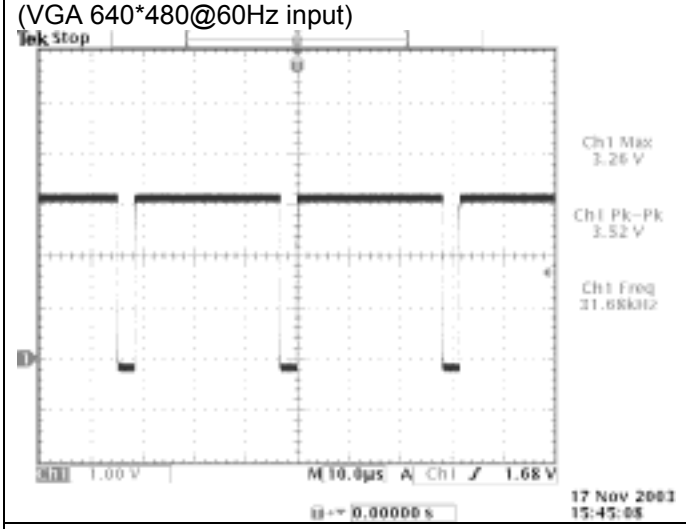
30)P805 Pin#5 Inverter on/off (High=on)



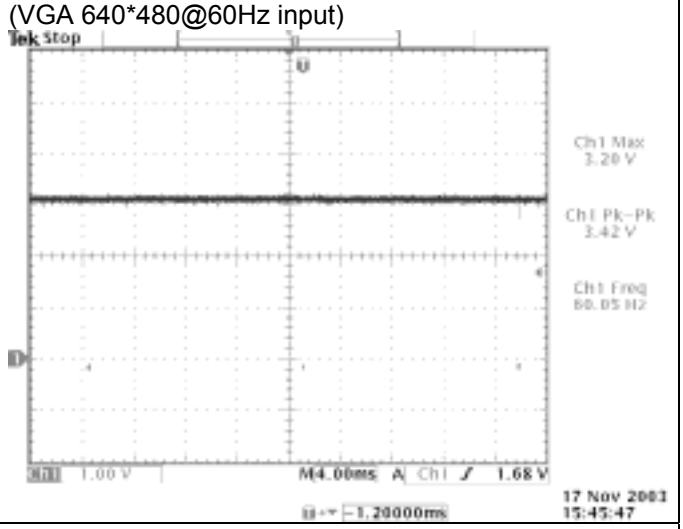
WAVE FORM

NOTE!!: Video = Gray scale pattern input / Audio = 1Khz input at volume step 40.

31) PC/DTV Hsync input
(VGA 640*480@60Hz input)

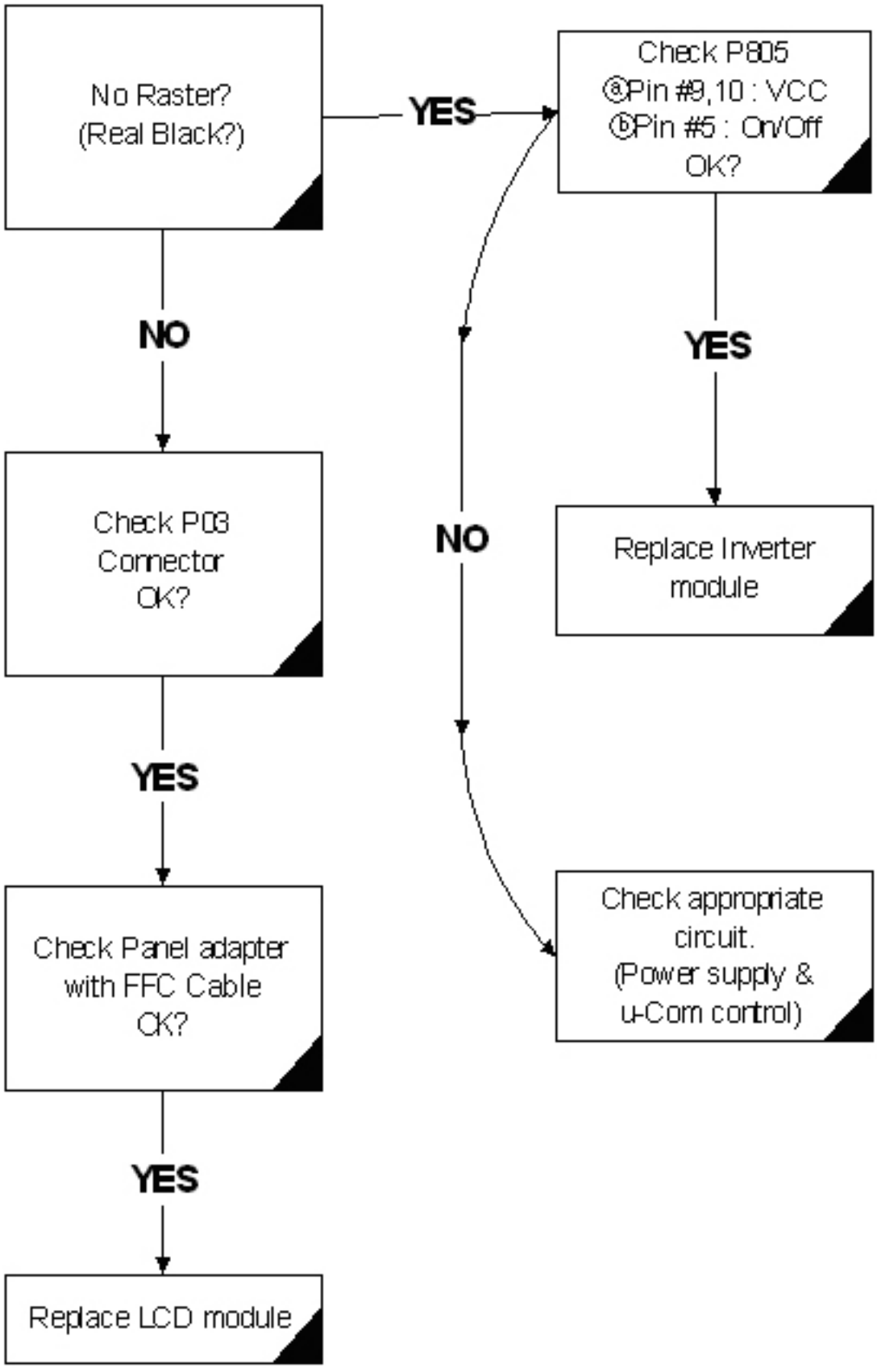


32) PC/DTV Vsync input
(VGA 640*480@60Hz input)

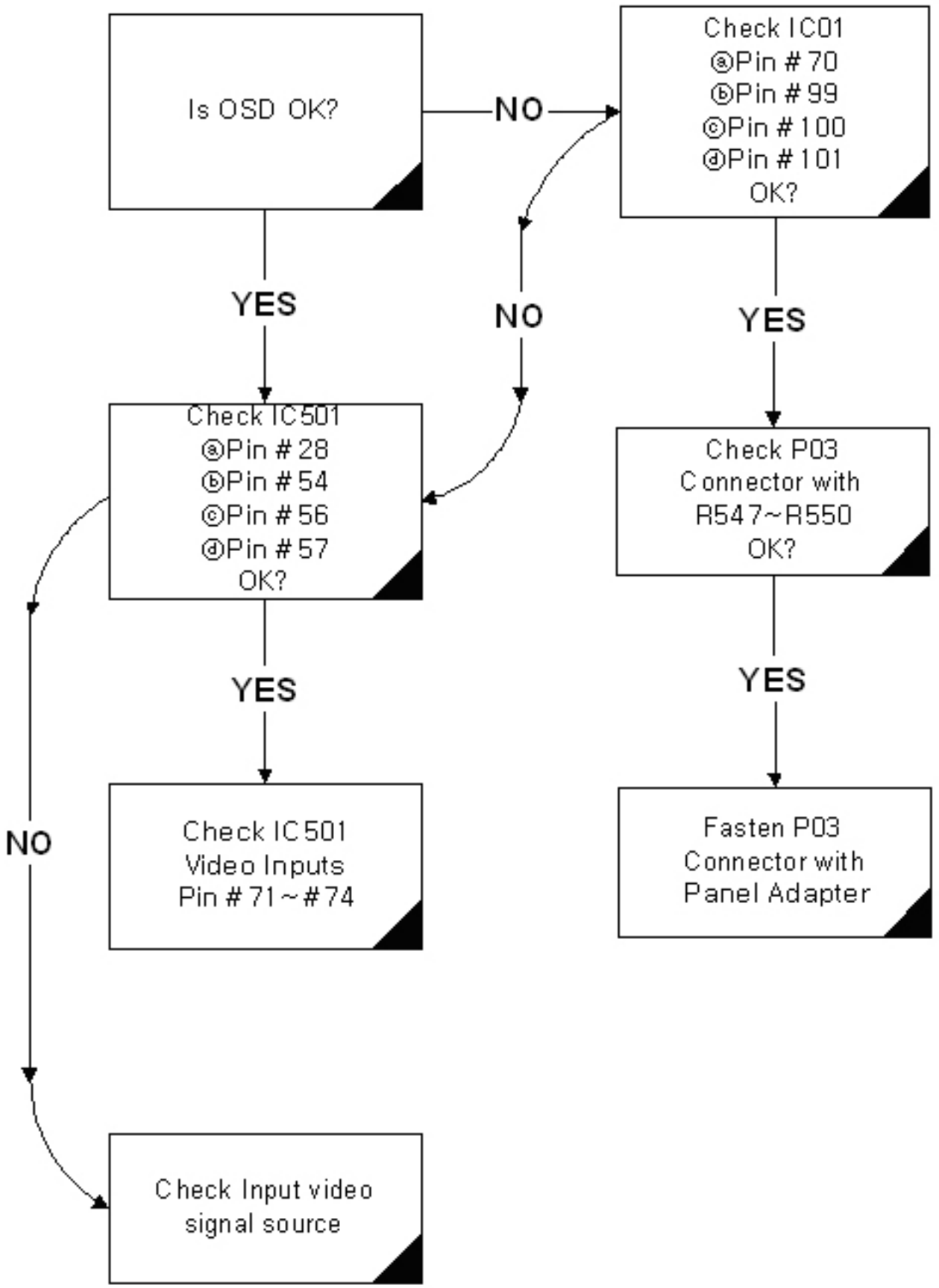


1. No Raster

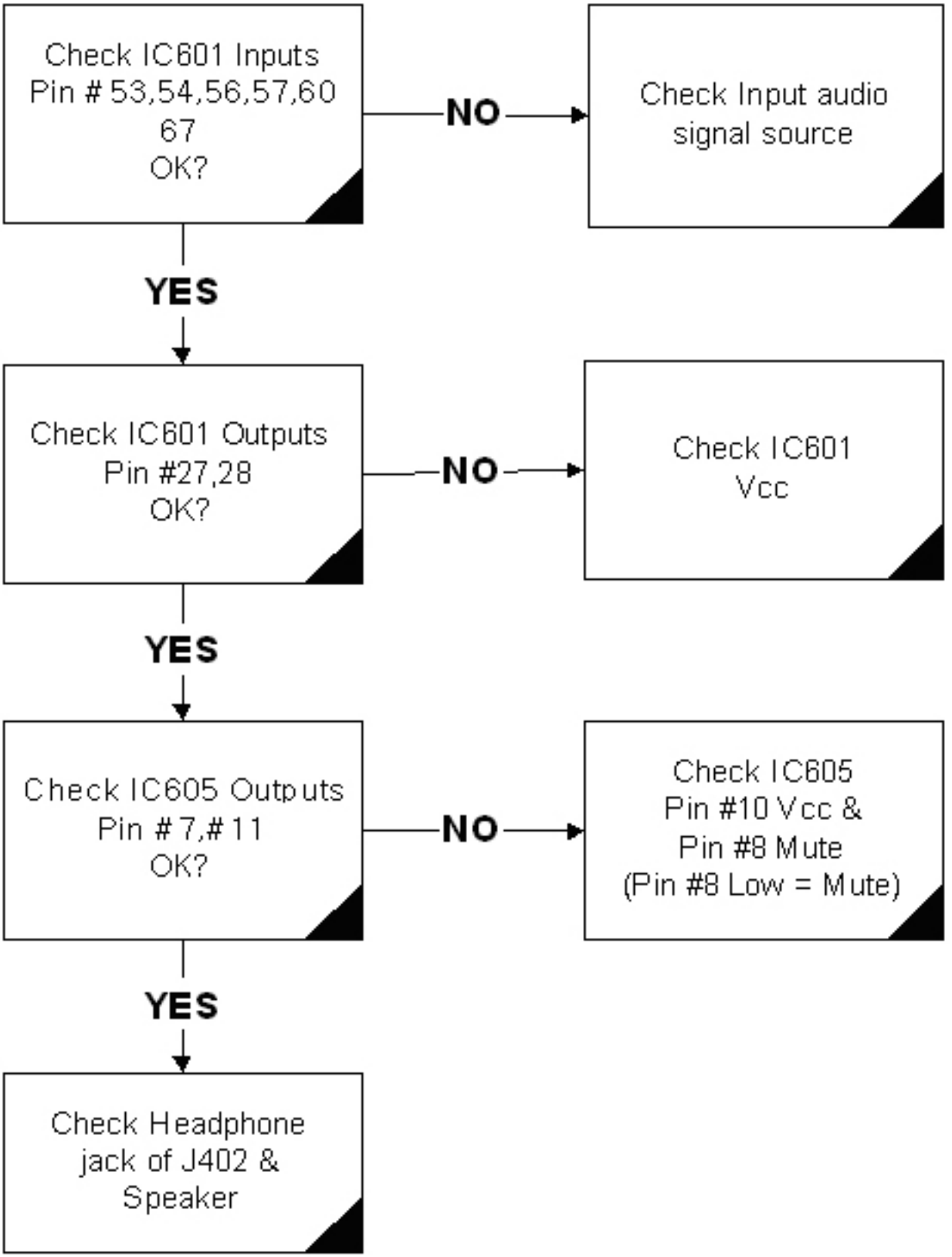
TROUBLE SHOOTING



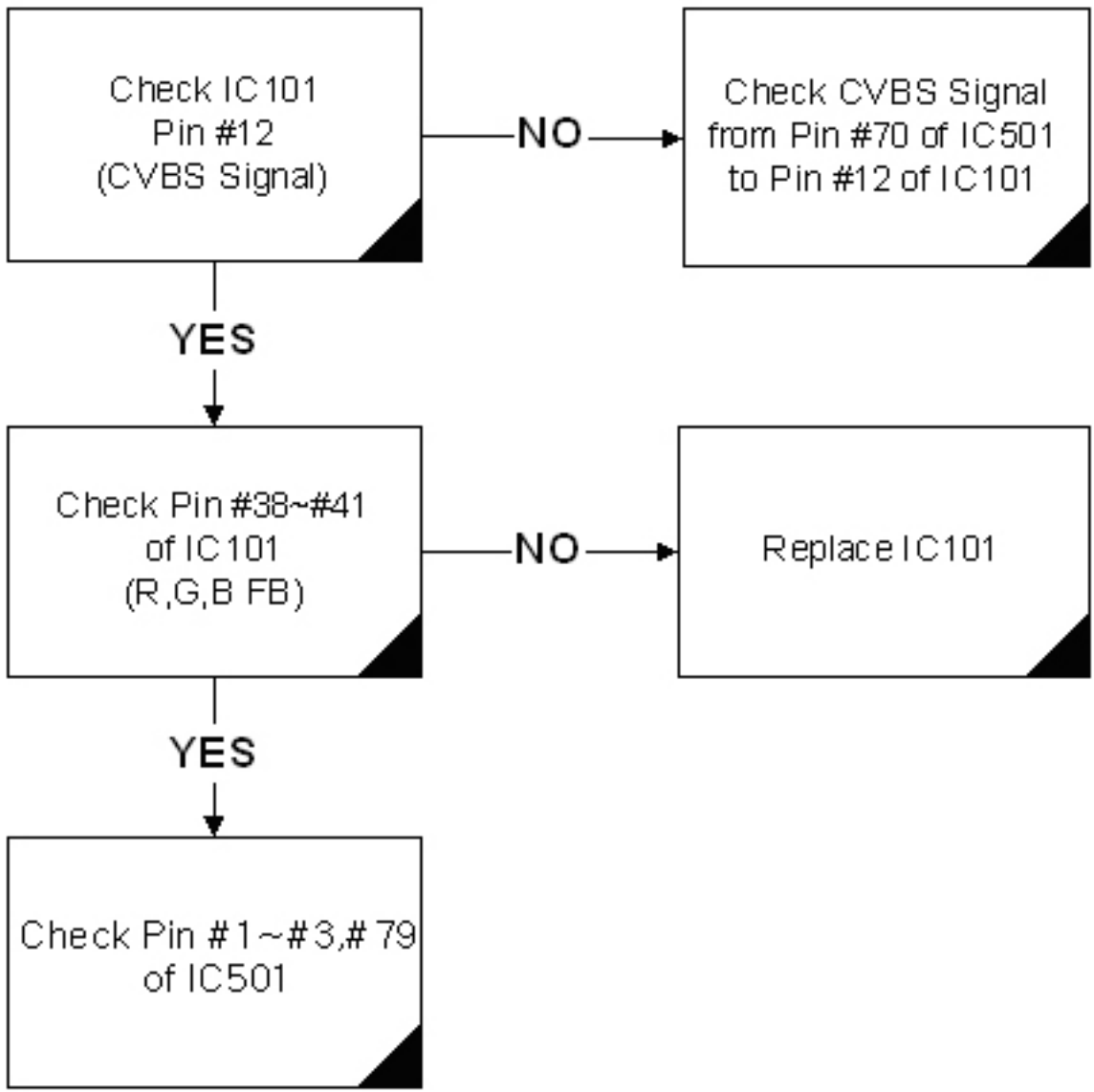
2. No Picture & Sound OK



3. No Sound & Picture OK



4. No Text


Check IC101
Pin #12
(CVBS Signal)
NO
Check CVBS Signal
from Pin #70 of IC501
to Pin #12 of IC101
YES
Check Pin #38~#41
of IC101
(R,G,B FB)
NO
Replace IC101
YES
Check Pin #1~#3,#79
of IC501

REPLACEMENT PART LIST

1.Parts List (Assemble process)

LEVEL	PART NO	PART NAME	DESCRIPTIONS	Q,TY
1	300-003J000	BOX, ACCESSORY	20.1" F MODEL	1
1	300-008N000	BOX, GIFT	RL-20S10(LT-20FTP), RUS, ROLSEN	1
1	CON07P200ADT	LEAD ASSY	20.1"IPS, 7-PIN 640MM	1
1	CON10P125AAC	LEAD ASSY, CASIO	10.4" INVERTER, 10-PIN 70MM	1
1	CON50P050AAF	LEAD ASSY	20.1" IPS PANEL, 50-PIN 130MM -/-	1
1	PANLC201V200	PANEL, LCD COLOR	20.1", LC201V2	1
1	310-012A000	PACKING, RIGHT	20.1" F MODEL	1
1	310-012B000	PACKING, LEFT	20.1" F MODEL	1
1	320-001A000	BAG, VINYL	ACCESSORY PACKING	1
1	321-003A000	BAG, PACKING	20.1" A/E SET PACKING	1
1	402-003M000	COVER, HINGE	20.1" F MODEL, RIGHT	1
1	402-003N000	COVER, HINGE	20.1" F MODEL, LEFT	1
1	404-004A000	BLOCK KNOB	F/N-MODEL, LOCAL KEY, Chromium	1
1	407-001J000	SHIELD, FRONT	20.1", F MODEL, PANEL COVER SHIELD	1
1	407-002F000	SHIELD, REAR	20.1" F MODEL, PCB ASSY COVER	1
1	407-003N000	SHIELD, JACK	20.1" IPS MODEL, YUV	1
1	410-001L000	SCREW	TTB 3*10	13
1	410-001N000	SCREW	FTB 3*6	20
1	410-001Q000	SCREW	BTB 4*12	10
1	410-001R000	SCREW	PB 4*8	4
1	410-002D000	SCREW	TTBW 3*6	16
1	410-002T000	SCREW	PTTBW 3*10 -SBN	2
1	490-001E000	FORM, SHIELD	GASKET, 71TSK20-15-150-00	1
1	490-001F000	FORM, SHIELD	GASKET, 71TSK10-10-20-00	1
1	491-001A000	TAPE, CONDUCTIVE	W:40mm,L:20mm, COPPER	1
1	496-002B000	INSULATION SHEET	70mm*70mm	1
1	499-002A000	TAPE, 투명	W:70mm	2400mm
1	499-004A000	TAPE, ACETATE	W:20mm, L:30m	300mm
1	500-020G000	OWNER'S MANUAL	RL-20S10(LT-20FTP),RUS, ROLSEN	1
1	501-001R000	LABEL, WARNING	ROLSEN/ELSON, RUS	1
1	501-003O000	LABEL, SERIAL	원자재, SILVER/BLACK	1
1	501-016F000	STICKER,LOGO	ROLSEN, 15/17" SIZE 40MM	1
1	501-062K000	LABEL, ID	RL-20S10(LT-20FTP), RUS, ROLSEN	1
1	502-0010000	LABEL, BOX ID	CARTON BOX, ALL MODEL	1
1	507-001A000	LABEL, PROTECTIVE	PANEL FILM FIX	4
1	510-002A000	REMOCON	NO BRAND,PR,TEXT	1
1	520-001A000	BATTERY	1.5V, AAA SIZE	2
1	522-001M000	WARRANTY CARD	ROLSEN, COMMON, RUS	1
1	610-003B000	SPEAKER	7W, 8 OHM	4
1	620-002A000	AC/DC ADAPTER	15V, 4.5A	1
1	621-001B000	POWER CORD	250V, 2-PIN,1.8M, BK, VDE KKP-4819R	1
1	622-004B000	INVERTER, DC-AC	20.1", FIF2064-31A	1
1	626-001A000	CABLE, PC RGB	IVORY, 1.8M, 15-PIN	1
1	AYBCLT33A01A	BACK COVER ASS'Y	LT-20Fxx	1
1	AYCALT33A01A	CABINET ASS'Y	20.1" F MODEL, PR	1
1	AYCOLT32A01A	CONTROL PCB ASS'Y	F/N MODEL, 111-A34A-30 CONTROL	1
1	AYMALT33A01C	MAIN PCB ASS'Y	LT-20TP IPS, YUV+MSP3410x	1
1	AYSBLT33A01A	SUB PCB ASS'Y	20.1" F MODEL, PANEL ADAPTER	1
1	AYSTLT33A01A	STAND ASS'Y	20.1" F MODEL	1
1	CON02P200A0Q	LEAD ASSY	20.1" SPK, 2-PIN, 520MM, TERMINAL #2	1
1	CON02P350ACA	LEAD ASSY	20.1" INVERTER, 2-PIN 40MM	1
1	CON03P200A0V	LEAD ASSY	20.1" SPK, 3-PIN 730MM	1
1	CON04P400ACA	LEAD ASSY	20.1" INVERTER, 4-PIN 40MM	1
1	CON05P200ABH	LEAD ASSY	30.1" LED, 5-PIN 200MM H/H	1

REPLACEMENT PART LIST

2.Parts List (Main PCB)

LEVEL	PART NO	PART NAME	DESCRIPTIONS	LOCATION NO	Q,TY
	GRLT33AM001A	GR, COMMON, MANUAL			
1	0ICKE78080AD	KIA7808AP	IC, KIA7808	IC805	1
1	0ICKE78120AD	KIA7812API	IC, KIA7812API TO-220	IC808	1
1	1ICMI555X0AD	SDA555XFL	IC, SDA555XFL	IC101	1
1	0SOCK52D178D	HD1F-52T-06형	Socket, 52-Pin	#IC101	1
1	0LRSM00100BD	SMC103	Inductor, 10MH	L802	1
1	0XTKI143180D		Crystal, 14.318MHZ	X01	1
1	0XTKI184320D		Crystal, 18.432MHZ	X601	1
1	0XTKI202500D		Crystal, 20.25MHZ	X501	1
1	0XTKI600000D		Crystal, 6MHZ	X101	1
1	WAFYH03200SD	SMW200-03	Pin wafer, 3-PIN	P602	1
1	WAFLG04250SD	GIL-G-4P-S3T2	Pin wafer, 4-PIN	P104	1
1	WAFLG06250SD	GIL-G-6P-S3T2	Pin wafer, 6-PIN	P101	1
1	WAFML07200SD		Pin wafer, 7-PIN, STRAIGHT	P501	1
1	WAFYH02200SD	SMW200-02	Pin wafer, 2-PIN	P601	1
1	0JAPK014A00D	PMJ014A	Jack, A/V+HP+SVHS	J402	1
1	0JAPK6054BBD	PJ6054B	Jack, AV 3-PIN	J404	1
1	1JADM231000D	DS231-115	Jack, DC-Power	J801	1
1	WAFYH10200AD	BMH200-10R	Pin wafer, 10-Pin	P101,P102	2
1	0CESS471EMTR	0CE477CH618	Capacitor, AL.E 470UF	C648,C652,C653,	3
1	0JADM15RF00D	DAH-15RF-4B4	Jack, D-SUB	J201	1
	AYHSLA4282IB	GR, HEAT SINK, MANUAL			
1	1ICSA42820AD	LA4282	IC, LA4282	IC605	1
1	498-001A		Silicon grease	#IC605	1
1	420-001A		Heat sink, 42*20 H:20MM	#IC605	1
1	410-002A		Screw, PB 3*8	#IC605	2
	GRLT33AM001C	GR, YUV, MANUAL			
1	0JAPK6063C0D	PJ6063	Jack, YUV	J401	1
1	0JAPK6035J2D	PJ6035J2	Jack, YUV SOUND	J403	1
	GRLT33AM001F	GR, MULTI, MANUAL			
1	0TULGZ242DBD	TAFD-Z242D	Tuner, 2 in 1 MULTI	TU101	1
1	WAFYH10200AD	BMH200-10R	Pin wafer, 10-Pin	P102,P103	2
1	111-A35A	PCB TUNER			1
	GRLT33AA001A	GR, COMMON, AUTO			
2	0CESH334HMTR		Capacitor, AL.E 0.33UF	C123	1
2	0CESS010HMTR	0CE105CK638	Capacitor, AL.E 1UF	C245,C246	2
2	0CESS2R2HMTR	CESSL1H2R2M0511AA	Capacitor, AL.E 2.2UF	C422,C642,C645	3
2	0CESS3R3HMTR	CESSL1H3R3M0511AD	Capacitor, AL.E 3.3UF	C132,C625	2
2	0CESS4R7HMTR	CESSL1H4R7M0511AD	Capacitor, AL.E 4.7UF	C807,C122	2
2	0CESS100CMTR	CESSL1C100M0511AD	Capacitor, AL.E 10UF	C142,C556,C126,C526, C621,C622,C639,	7
2	0CESS220CMTR	CESSL1C220M0511AD	Capacitor, AL.E 22UF	C803,C547	2
2	0CESS470CMTR	CESSL1C470M0511AD	Capacitor, AL.E 47UF	C655,C816,C520,C549, C613,	5
2	0CESS101CMTR	CESSL1C101M0611AD	Capacitor, AL.E 100UF	C115,C117,C517,C536, C546,C601,C602,C641, C643,C646,C620,C258	12

REPLACEMENT PART LIST

3.Parts List (Main PCB)

LEVEL	PART NO	PART NAME	DESCRIPTIONS	LOCATION NO	Q,TY
2	0CESS101EMTR	CESSL1E101M0611AD	Capacitor, AL.E 100UF	C801,C804,	2
2	0CESS221CMTR	CESSL1C221M0611AD	Capacitor, AL.E 220UF	C128,C146,C28,C30, C31,C830	6
2	0CESS221EMTR	CESSL1E221M0812AD	Capacitor, AL.E 220UF	C825,	1
2	0CESS471AMTR	CESSL1A471M0812AA	Capacitor, AL.E 470UF	C34,C35,C144,C805, C806,C821	6
2	1DDSKEU1ZMTS		Diode, axial EU1Z	D802	1
2	1ICFC2N700TR	2N7000TA	TR, FET	Q109,Q110	2
2	0RDSS121FJTA	DR1/2WJ121	Resistor, RD 120 ohm	R428,R429	2
2	1DZSSHZT33VA	HTZ J T-52 33B	Zener Diode, HZT-33	ZD101	1
2	0LASS120FKTA	AL02TB 120K	Inductor, axial 12UH	L410	1
2	0LASS220HKTA	AL04 TB 220K	Inductor, axial 22uH	L101,L103,L107	3
2	0LASS270FKTA	AL02TB 270K	Inductor, axial 27UH	L413	1
2	0CQSS103KKTR	MC103J2A	Capacitor, poly 0.01UF	C649,C650	2
2	0LBSS3580RTR	BFD-3580R2F	Ferite Core 1UH	L805,L806,L604,	3
	GRLT33AA001D	**GR, YUV, AUTO**			
2	0CESS100CMTR	CESSL1C100M0511AD	Capacitor, AL.E 10UF	C402,C405,C406	3
2	0CESS010HMTR	0CE105CK638	Capacitor, AL.E 1UF	C211,C238	2
	GRLT33AS001A	**GR, COMMON, SMD**			
3	0CHSS470DDTS	CL10C470DBNC	Capacitor, chip 47P	C124,C125,	2
3	0CHSS103DKTS	CL10B103KBNC	Capacitor, chip 0.01UF	C603,C609,C612,C640, C102,C103,C104,C108, C111,C112,C113,C131, C417,C418,C248,C249	16
3	0CHSS473DKTS	CL10B473KANC	Capacitor, chip 0.047UF	C519,C537,C548,C557	4
3	0CHSS683DKTS	CL10B683KONC	Capacitor, chip 0.068UF	C501,C502,C559	3
3	0CHSS104DZTS	CL10F104ZANC	Capacitor, chip 0.1UF	C01,C02,C03,C04,C05, C07,C33,C36,C37,C38, C41,C42,C67,C68,C69, C70,C71,C72,C73,C74, C114,C116,C118,C143, C505,C506,C507,C508, C509,C510,C542,C555, C614,C624,C651,C654, C802,C824,C826,C827, C828,C107,C127,C129, C421,C636,C647,C619, C145	49
3	0CHSS224DZTS	CL10C224ZONC	Capacitor, chip 0.22UF	C511,C512,C513,C514, C515,C516,C523,C541, C552,C626,C631,C632, C633,C634,C635,C571, C572,C573,C574,C575, C576,C577,C578,C581, C582,	25
3	0CHSS334DZTS	CL10F334ZONC	Capacitor, chip 0.33UF	C110	1
3	0CHSS020DCTS	CL10C020CBNC	Capacitor, chip 2PF	C607,C608	2
3	0CHSS030DCTS	CL10C030CBNC	Capacitor, chip 3PF	C553,C554	2
3	0CHSS080DCTS	CL10C080CBNC	Capacitor, chip 8PF	C423	1
3	0CHSS100DJTS	CL10C100DBNC	Capacitor, chip 10PF	C32,C43,C44,C45,C46, C47,C48,C49,C50,C51, C52,C53,C54,C55,C56, C57,C58,C59,C60,C61, C62,C63,C64,C65,C66	25

REPLACEMENT PART LIST

4.Parts List (Main PCB)

LEVEL	PART NO	PART NAME	DESCRIPTIONS	LOCATION NO	Q,TY
3	0CHSS150DJTS	CL10C150JBNC	Capacitor, chip 15PF	C39,C40,C420	3
3	0CHSS330DJTS	CL10C330JBNC	Capacitor, chip 33PF	C105,C106,C419	3
3	0CHSS560DJTS	CL10C560JBNC	Capacitor, chip 56PF	C424,C604,C605	3
3	0CHSS620DJTS	CL10C620JBNC	Capacitor, chip 62PF	C151,C152	2
3	0CHSS101DJTS	CL10C101JBNC	Capacitor, chip 100PF	C109	1
3	0CHSS391DJTS	CL10C391JBNC	Capacitor, chip 390PF	C521,C540,C550	3
3	0CHSS471DJTS	CL10C471JBNC	Capacitor, chip 470PF	C425,C426	2
3	0CHSS102DKTS	CL10B102KBNC	Capacitor, chip 1000PF	C247,C522,C531,C551	4
3	0CHSS152DKTS	CL10B152KBNC	Capacitor, chip 1500PF	C538,C539,C558,C615, C616	5
3	0CHSS222DKTS	CL10B222KBNC	Capacitor, chip 2200PF	C627,C628,C629,C630, C617,C618,C656,C657, C528	9
3	0CHSS332DKTS	CL10B332KBNC	Capacitor, chip 3300PF	C658	1
3	0CHSS472DKTS	CL10B472KBNC	Capacitor, chip 4700PF	C638	1
3	0RHSS000DJTS	RC1608J000CS	Resistor, chip 0 ohm	R164,R166,R430,R501, R502,R507,R508,R813, R102,R505,	10
3	0RHSS112DJTS	RC1608J112CS	Resistor, chip 1.1K	R552	1
3	0RHSS122DJTS	RC1608J122CS	Resistor, chip 1.2K	R807	1
3	0RHSS100DJTS	RC1608J100CS	Resistor, chip 10 ohm	R532,R605	2
3	0RHSS101DJTS	RC1608J101CS	Resistor, chip 100 ohm	R03,R17,R23,R107, R111,R112,R113,R114, R118,R122,R124,R126, R128,R130,R144,R174, R175,R179,R193,R194, R195,R509,R510,R511, R526,R601,R607,R608, R617,R117	30
3	0RHSS104DJTS	RC1608J104CS	Resistor, chip 100K	R806	1
3	0RHSS103DJTS	RC1608J103CS	Resistor, chip 10K	R631,R802,R805,R822	4
3	0RHSS123DJTS	RC1608J123CS	Resistor, chip 12K	R178	1
3	0RHSS151DJTS	RC1608J151CS	Resistor, chip 150 ohm	R441,R630	2
3	0RHSS102DJTS	RC1608J102CS		R109,R115,R160,R163, R611,R612,R613,R614, R615,R616,R622,R629, R632,R633,R634,R636, R801,R804,R821,R528	20
3	0RHSS105DJTS	RC1608J105CS	Resistor, chip 1M	R08,R602,	2
3	0RHSS272DJTS	RC1608J272CS	Resistor, chip 2.7K	R196,R197,R533	3
3	0RHSS220DJTS	RC1608J220CS	Resistor, chip 22 ohm	R04,R11,R20,R21,R22, R140,R141,R142,R151, R152,R177,R190,R191, R192,R516,R517,R518, R519,R520,R527,R534, R547,R548,R549,R550, R830,	26
3	0RHSS223DJTS	RC1608J223CS	Resistor, chip 22K	R104,R153,R183,R808	4
3	0RHSS244DJTS	RC1608J244CS	Resistor, chip 240K	R219,R220	2
3	0RHSS270DJTS	RC1608J270CS	Resistor, chip 27 ohm	R01	1
3	0RHSS273DJTS	RC1608J273CS	Resistor, chip 27K	R18,R606	2
3	0RHSS3R3DJTS	RC1608J3R3CS	Resistor, chip 3.3 ohm	R623,R624	2
3	0RHSS332DJTS	RC1608J332CS	Resistor, chip 3.3K	R125,R127,R129,R143, R145,R170,R171,R172	8
3	0RHSS392DJTS	RC1608J392CS	Resistor, chip 3.9K	R609,R610,R635,R637	4

REPLACEMENT PART LIST

5.Parts List (Main PCB)

LEVEL	PART NO	PART NAME	DESCRIPTIONS	LOCATION NO	Q,TY
3	0RHSS472DJTS	RC1608J472CS	Resistor, chip 4.7K	R19,R146,R147,R161, R162,R167,R168,R181, R515,R618,R619,R625, R626,R811,R820,R120	16
3	0RHSS433DJTS	RC1608J433CS	Resistor, chip 43K	R116	1
	0RHSS470DJTS	RC1608J470CS	Resistor, chip 47 ohm	R138,R139	2
3	0RHSS471DJTS	RC1608J471CS	Resistor, chip 470 ohm	R110,R134,R135,R433,	4
3	0RHSS474DJTS	RC1608J474CS	Resistor, chip 470K	R436,R438	2
3	0RHSS512DJTS	RC1608J512CS	Resistor, chip 5.1K	R426,R435,R437,R499	4
3	0RHSS562DJTS	RC1608J562CS	Resistor, chip 5.6K	R131	1
3	0RHSS561DJTS	RC1608J561CS	Resistor, chip 560 ohm	R620,R627	2
3	0RHSS680DJTS	RC1608J680CS	Resistor, chip 68 ohm	R156	1
3	0RHSS683DJTS	RC1608J683CS	Resistor, chip 68K	R628	1
3	0RHSS750DJTS	RC1608J750CS	Resistor, chip 75 ohm	R221,R431,R432,R434, R512	5
3	0RHSS000EJTS	RC2012J000CS	Resistor, chip 0 ohm 2012	R809,R810,R857	3
3	0TRKE1504STS	KTA1504S Y	Transistor, chip A1504	Q601,Q602,Q604,Q605, Q606	5
3	0TRKE3875STS	KTC3875S Y	Transistor, chip C3875	Q111,Q302,Q505,Q507, Q801,Q802,Q820,Q821, Q103,Q104	10
3	0RYSS330FJTS	RP164PJ330CS	Resistor, Array chip 3216	RA01,RA02,RA03,RA04, RA05,RA06,RA07,RA08, RA09,RA10,RA11,RA12, RA13,RA14,RA15,RA16, RA17,RA18,RA19,RA20, RA21,RA22,RA23,RA24, RA25,	25
3	0DHKEKDS181S	KDS181, DIODE	Diode, chip KDS181	D102,D603,D604	3
3	0DHKEKDS226S	KDS226-RTK	DIODE, KDS226	D607,D608	2
3	1DZSC5231BTS	MMSZ5231BS	Zener diode, chip 5.1V	ZD409,ZD410,ZD414, ZD415,ZD416,ZD417, ZD418,ZD419,ZD411, ZD412,ZD413	11
3	1ICIPAP5R0BD	AP1501-5.0	IC, DC/DC Con-5.0V/3A	IC801	1
3	1ICSE24C16TS	S-24C16AFJA-TB	IC, 24C16	IC102	1
3	0DSSCB340ATS	B340A, DIODE	Diode, chip B340A	D803	1
3	1ICRO6161FTS	BA6161F	IC, BA6161F	IC802	1
3	0ICSS41616BS	K4S16162D-TC80	IC, K4S16162	IC03,IC04	2
3	0ICKE7027FTS	KIA7027AF	IC, KA7027	IC07,IC103	2
3	0ICKE7042FTS	KA7042AF, IC	IC, KA7042	IC603	1
3	0ICKE78L9FTS	KIA78L09F, IC	IC, KIA78L09F	IC807	1
3	0ICKE78L5FTS	KIA78L05F, IC	IC, KIA78L05F	IC804	1
3	1ICSTLD33CTS	LD1117DT33C	IC, LD33C	IC104,IC806,IC821	3
3	1IC88L284ABS	MX88L284-AEC	IC, MX88L284	IC01	1
3	0ICVI4925DTS	SI4925DY TP	IC, SI4925	IC803,IC822	2
3	1ICMI3230DBS	VPC3230-QA-B4	IC, VPC3230	IC501	1
3	0LBSS101DJTS	CIM21U101	Bead, chip 100 ohm 2012	L01,L02,L406,L407,L409, L411,L412,	7
3	0LBSS601DJTS	CIM31J601	Bead, chip 600 ohm 3216	L106,L501,L601,L602, L603,L606,L607,L608, L807,L06,L07,L08,L09	13
3	0LRSL10100BS	SMD12128.5	Inductor, SMD, 33UH	L801	1
3	WAFHI50050AS	FH12-50S-0.5SH	Pin wafer, 50-PIN	P03	1
3	WAFTH10125AS	YH12505WR-10	SMD,WAFER, 10-PIN	P805	1
3	111-A36A	111-A36A	PCB, Main		

REPLACEMENT PART LIST

6.Parts List (Main PCB)

LEVEL	PART NO	PART NAME	DESCRIPTIONS	LOCATION NO	Q,TY
	GRLT33AS001D	GR, MULTI, SMD			
3	1ICMI3410DBS	MSP3410D-QA-C5	IC, MSP3410D	IC601	1
3	0DHKEC102STS	KRC102S-RTK	Diode, chip C102S	Q101,Q102	2
3	0RHSS472DJTS	RC1608J472CS	Resistor, chip 4.7K	R136,R137	2
3	0RHSS103DJTS	RC1608J103CS	Resistor, chip 10K	R154,R155	2
3	0RHSS563DJTS	RC1608J563CS	Resistor, chip 56K	R176	1
3	0RHSS821DJTS	RC1608J821CS	Resistor, chip 820 ohm	R553	1
	GRLT33AS001G	GR, YUV, SMD			
3	0RHSS474DJTS	RC1608J474CS	Resistor, chip 470K	R217,R218,	2
3	0RHSS000DJTS	RC1608J000CS	Resistor, chip 0 ohm	R540,R541,R542,R546,	4
			Resistor, chip 330 ohm	R543,R544,R545,	3
3	0RHSS750DJTS	RC1608J750CS	Resistor, chip 75 ohm	R427,R498	2
3	0RHSS101DJTS	RC1608J101CS	Resistor, chip 100 ohm	R406,R514,	2
3	0RHSS220DJTS	RC1608J220CS	Resistor, chip 22 ohm	R405,R424,R425,	3
3	0RHSS473DJTS	RC1608J473CS	Resistor, chip 47K	R402,R416,R419,	3
3	0RHSS333DJTS	RC1608J333CS	Resistor, chip 33K	R403,R417,R420	3
3	0RHSS102DJTS	RC1608J102CS	Resistor, chip 1K	R404,R418,R421	3
3	0TRKE3875STS	KTC3875S Y	Transistor, chip C3875	Q401,Q402,Q403	3
	GRLT33AS001H	GR, PC SMD, INSERT			
3	1ICAD9883ABS	AD9883A-KST110	IC, AD9883A	IC201	1
3	1ICPH74F08TS	N74F08D	IC, 74F08	IC202	1
3	1ICST24C02WS	24C02W	IC, 24C02	IC203	1
3	0RHSS272DJTS	RC1608J272CS	Resistor, chip 2.7K	R213	1
3	0CHSS822DJTS		Capacitor, chip 0.0082U	C222	1
3	0CHSS823DKTS		Capacitor, chip 0.082U	C219	1
3	0LBSS260DJTS	CIB21P260NE	Bead, chip 26 ohm 2012	L202	1
3	0CHSS102DKTS	CL10B102KBNC	Capacitor, chip 1000PF	C223	1
3	0CHSS030DCTS	CL10C030CBNC	Capacitor, chip 3PF	C208	1
3	0LBSS601DJTS	CIM31J601	Bead, chip 600 ohm 3216	L301,L209	2
3	0CHSS473DKTS	CL10B473KANC	Capacitor, chip 0.047UF	C228,C232,C237,	3
3	0RHSS750DJTS	RC1608J750CS	Resistor, chip 75 ohm	R243,R244,R245,	3
3	0RHSS101DJTS	RC1608J101CS	Resistor, chip 100 ohm	R258,R259	2
3	0RHSS102DJTS	RC1608J102CS	Resistor, chip 1K	R255,R256,	2
3	0CHSS100DDTS	CL10C100DBNC	Capacitor, chip 10PF	C242	1
3	0RHSS220DJTS	RC1608J220CS	Resistor, chip 22 ohm	R12,R13,R14,R15, R16,R203,R206,R207, R209,R211,R212,R214, R215,R216,R246,R248, R253,R254,	18
3	1DZSC5231BTS	MMSZ5231BS	Zener diode, chip 5.1V	ZD240,ZD241,ZD242, ZD243,ZD244,ZD245, ZD246,	7
3	0RHSS103DJTS	RC1608J103CS	Resistor, chip 10K	R210,R247,R249	3
3	0RHSS000DJTS	RC1608J000CS	Resistor, chip 0 ohm	R201,R205,R235,R252, R222,R223,R230,R231, R233,R199,R200,R240, R241,R242	14
3	0RHSS473DJTS	RC1608J473CS	Resistor, chip 47K	R250,R251	2

REPLACEMENT PART LIST

7.Parts List (Main PCB)

LEVEL	PART NO	PART NAME	DESCRIPTIONS	LOCATION NO	Q,TY
3	0CHSS104DZTS	CL10F104ZANC	Capacitor, chip 0.1UF	C240,C243,C203,C204, C205,C206,C207,C209, C210,C212,C213,C214, C215,C216,C217,C218, C225,C229,C230,C233, C234,C235	22

REPLACEMENT PART LIST

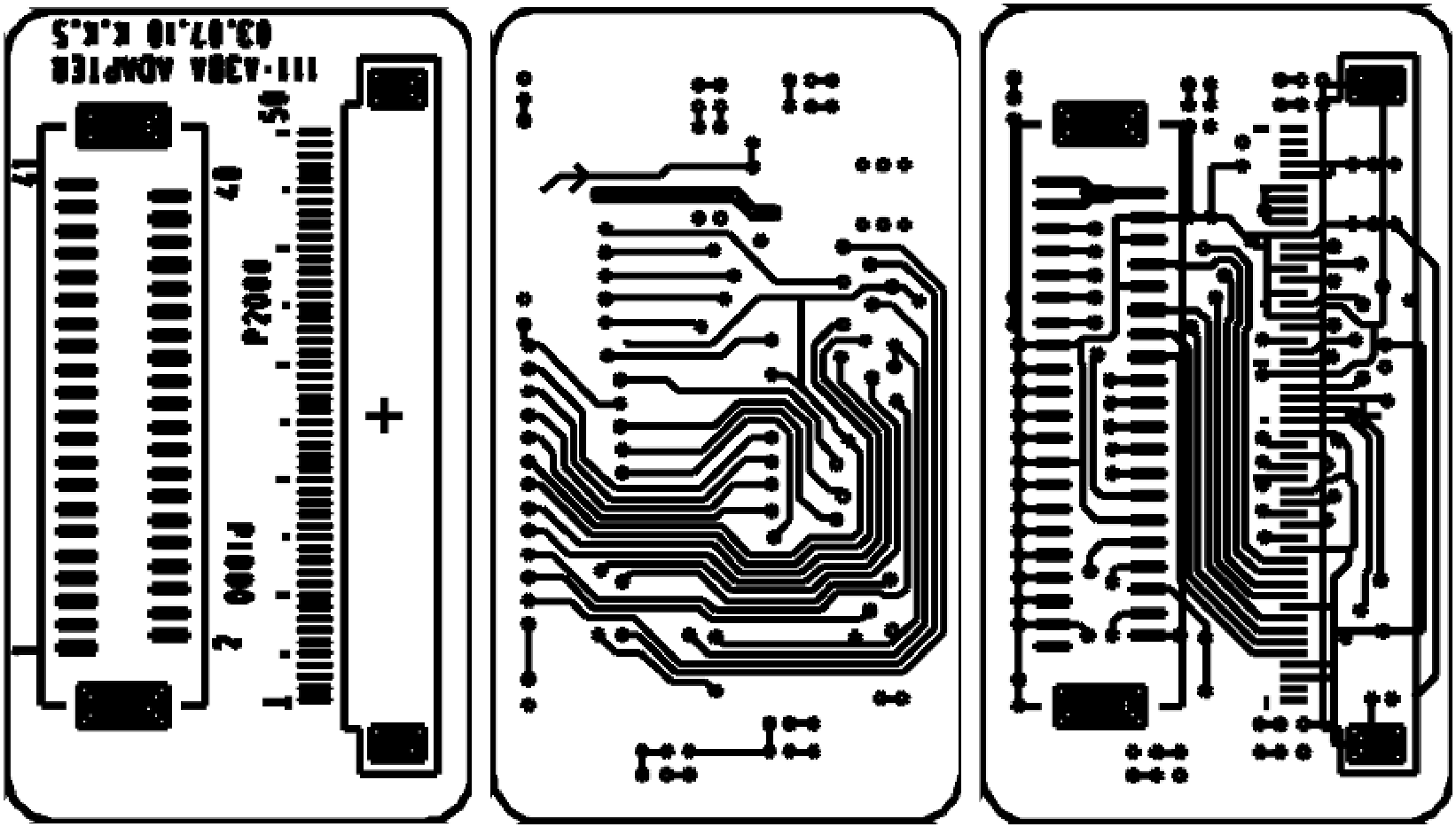
8.Parts List (Panel adapter PCB / Control PCB)

LEVEL	PART NO	PART NAME	DESCRIPTIONS	LOCATION NO	Q,TY
1	AYSBLT33A01A000	SUB PCB ASS'Y	20.1" F MODEL, PANEL ADAPTER		1
2	WAFHI50050AS000	WAFER, PIN	50-PIN, P:0.5mm	P2000	1
2	WAFHI41100SS000	WAFER, PIN	41-PIN, P1.0mm, STRAIGHT	P1000	1
2	111-A38A000	PCB, SUB	20.1" IPS PANEL SUB PCB		1

LEVEL	PART NO	PART NAME	DESCRIPTIONS	LOCATION NO	Q,TY
1	WAFYH05200AD	SMAW-200-5	PIN Wafer, 5-PIN	P11A, P11B	2
1	WA1YH10200AD	SMAW-200-10	PIN Wafer, 10-PIN	P01B	1
1	0PAVI48380AD	TSOP4838	PRE-AMP	PA3001	1
1	0DLSYRG138AD	SLRG138	Diode, DUAL LED	LD3001	1
2	600-002A	YTP-1141A	S/W, TACK	SW3001,SW3002,SW3003 , SW3004,SW3005,SW3006	7
3	111-A34B	111-A34B	CONTROL PCB		1
3	0RHSS120DJTS	RC1608J120CS	Resistor, Chip, 1608	R3015	1
3	0RHSS471DJTS	RC1608J471CS	Resistor, Chip, 1608	R3011, R3013	2
3	0RHSS102DJTS	RC1608J102CS	Resistor, Chip, 1608	R3001,R3004	2
3	0RHSS222DJTS	RC1608J222CS	Resistor, Chip, 1608	R3002, R3003, R3005,	3
3	0RHSS472DJTS	RC1608J472CS	Resistor, Chip, 1608	R3012, R3014	2
3	0CHSS101DJTS	CL10C101JBNC	Capacitor, Chip, 1608	C3001	1
3	0TRKE3875STS	KTC3875S Y	Transistor, chip	Q3001,Q3002,3004	3

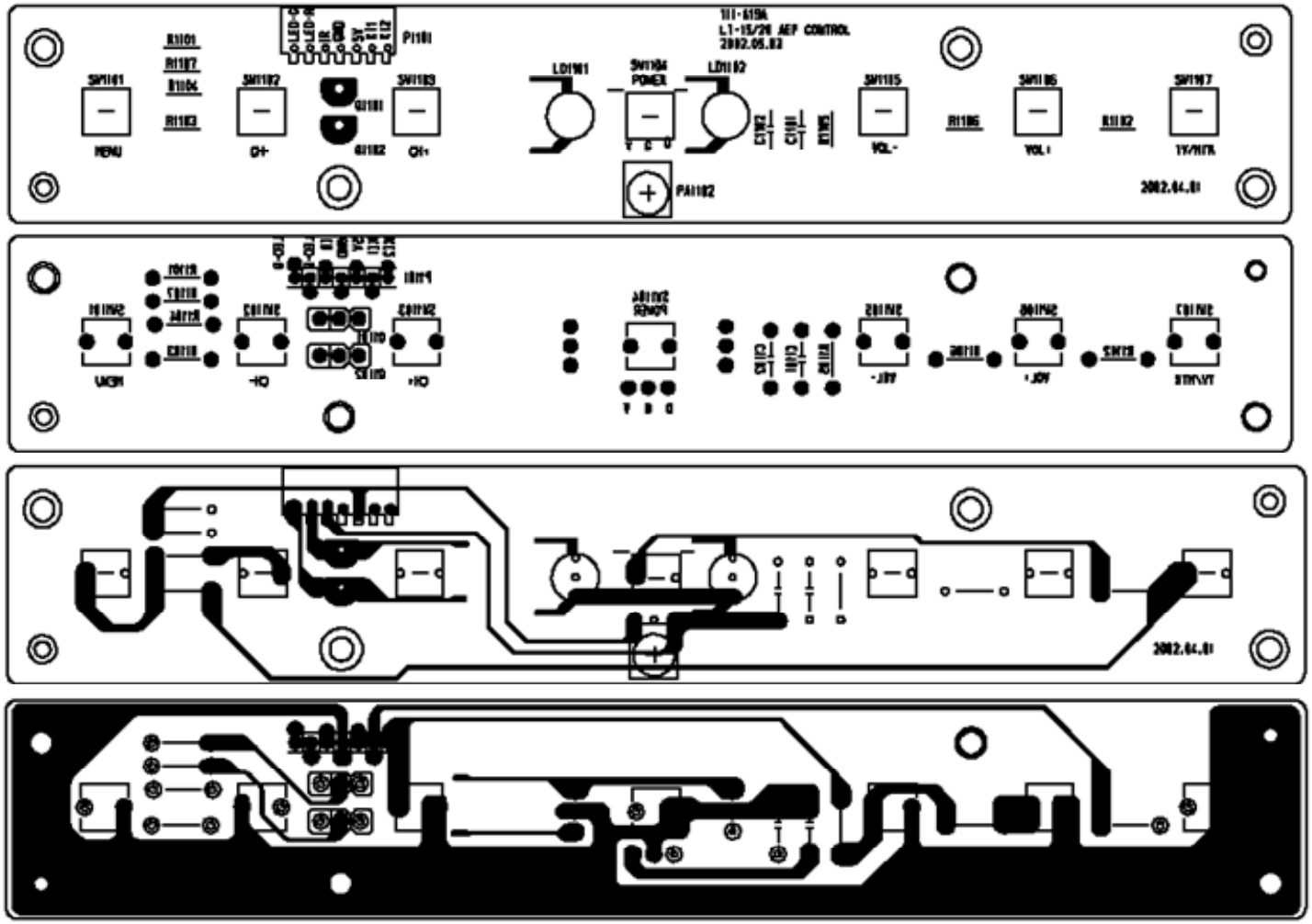
PCB LAYOUT

1.Panel Adapter PCB



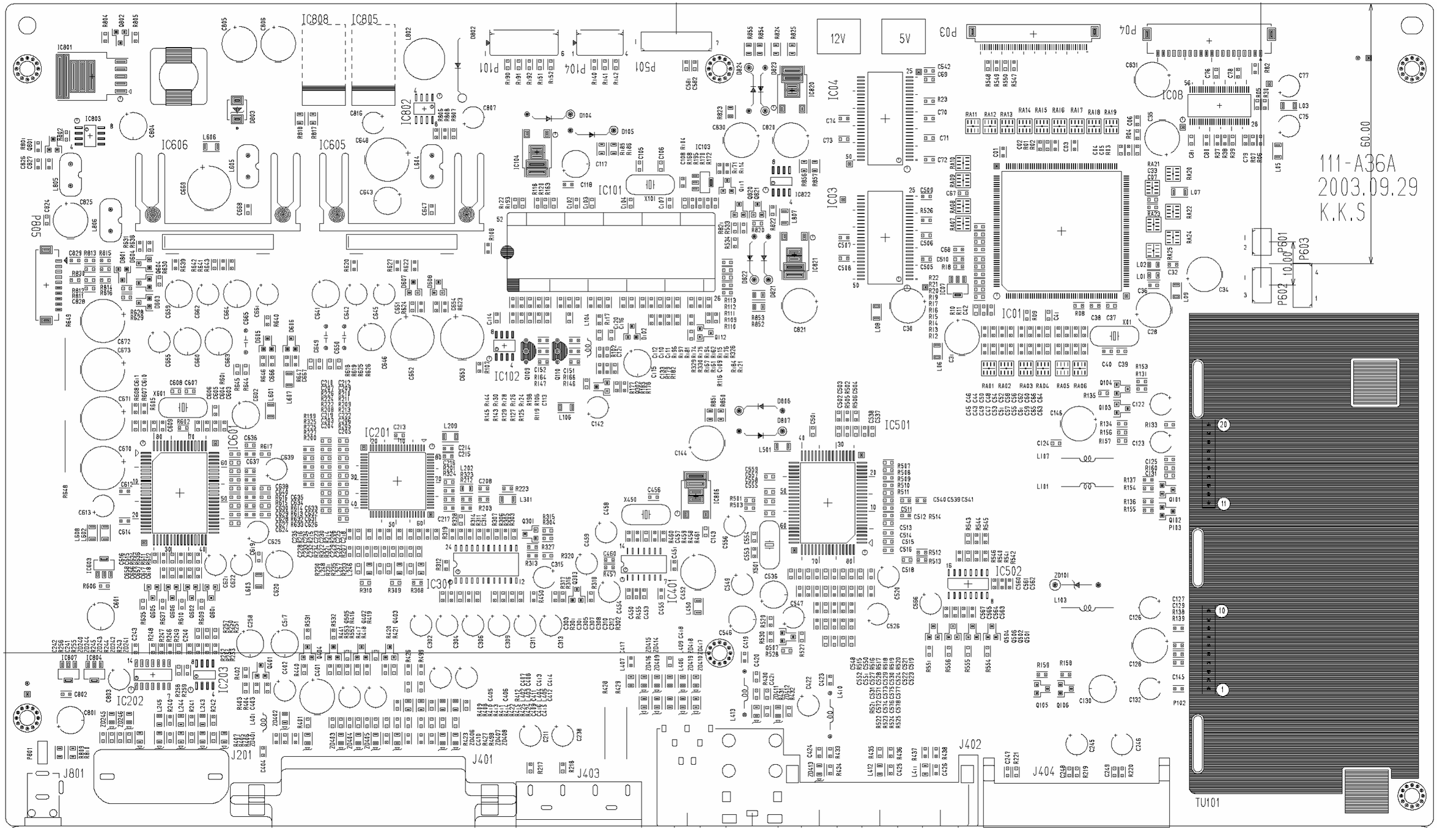
PCB LAYOUT

2. Control PCB



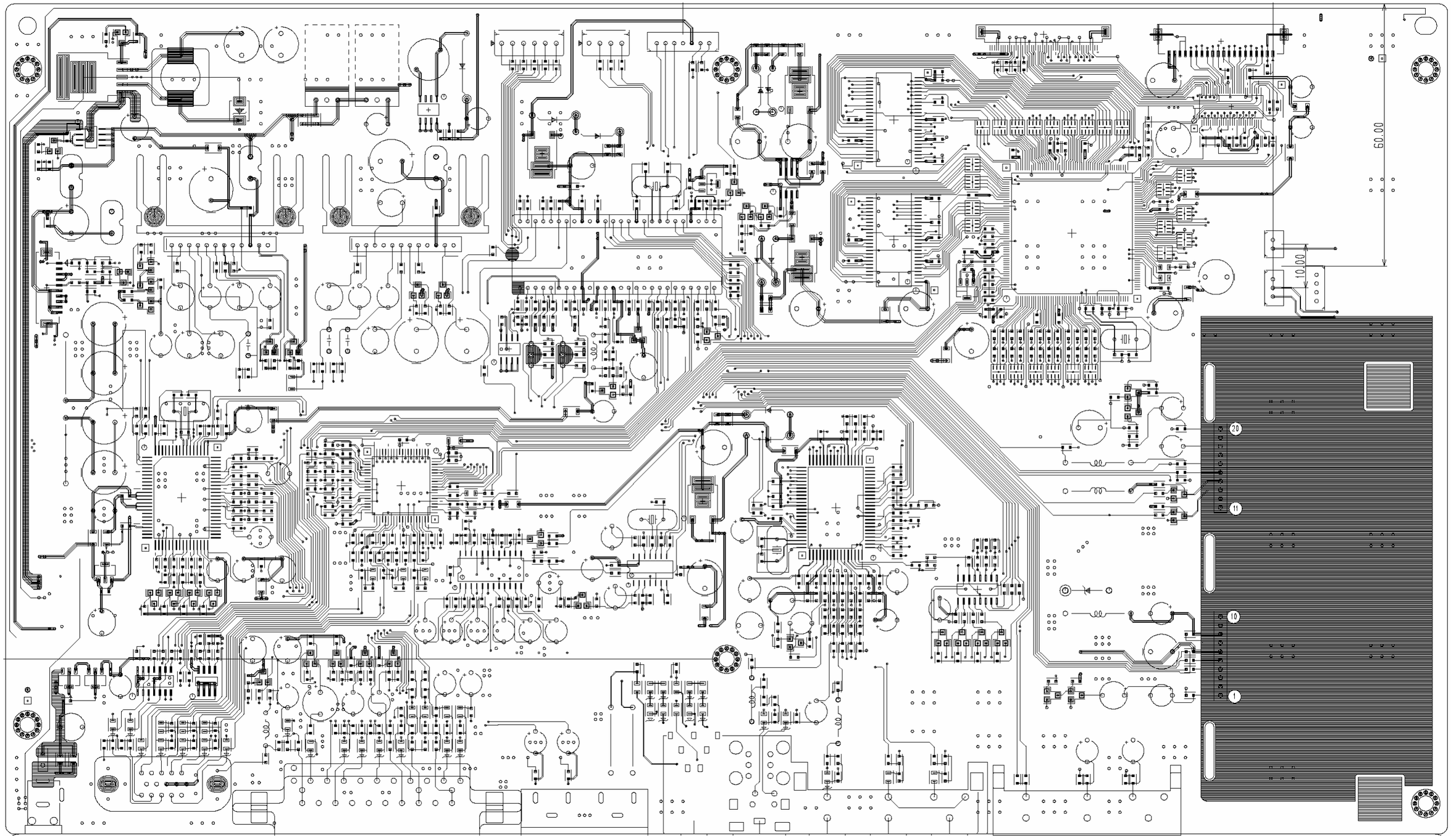
PCB LAYOUT

3-1. Main PCB



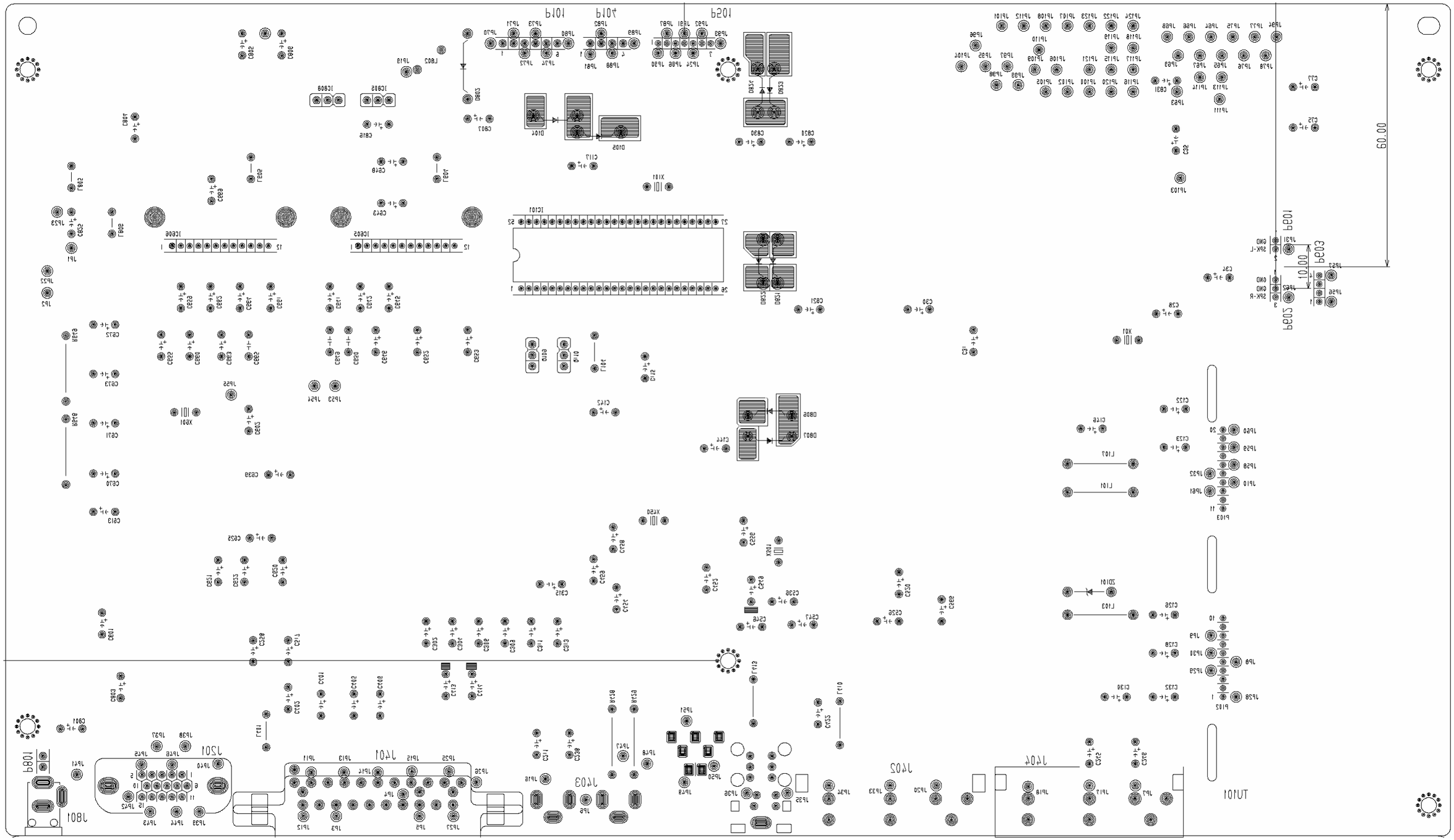
PCB LAYOUT

3-2. Main PCB



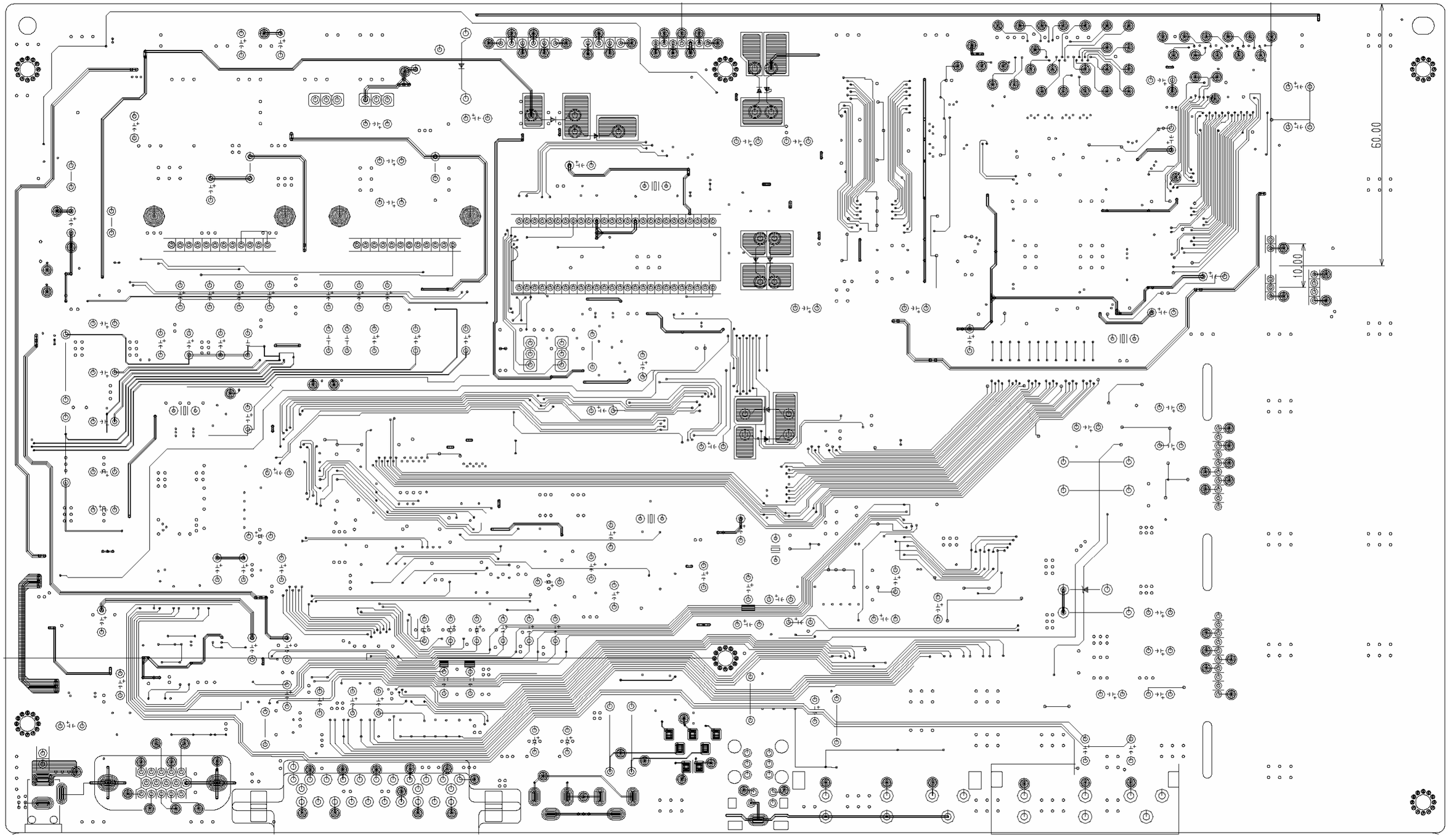
PCB LAYOUT

3-3. Main PCB



PCB LAYOUT

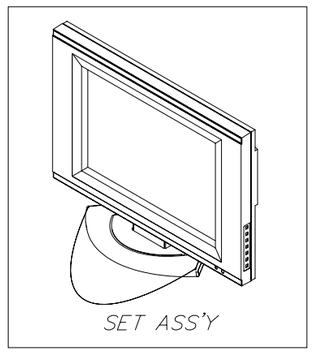
3-4. Main PCB

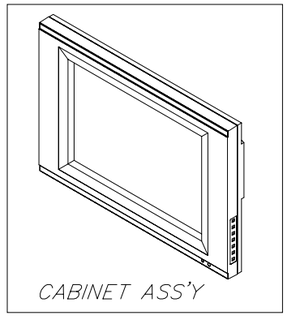


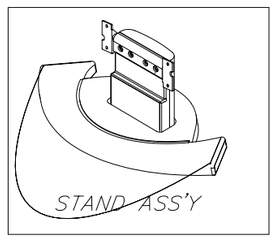
EXPLODED VIEW

1.Explode View

NO	DR	No.	DESCRIPTION	MATERIAL	COLOR FINISH	Q'ty	TORQUE(Kgf.cm) OPEN	TORQUE(Kgf.cm) CLOSE
	1-03-044	1	FRONT BODY	ABS/HIPS(VO)	SPRAY, SILVER	1		
		2	DECO COVER(TOP)	PMMA	ALUMINIUM COATING	1		
		3	DECO COVER(BOTTOM)	PMMA	ALUMINIUM COATING	1		
		4	CONTROL KNOB	ABS-HB	CHROME COATING	1		
		5	CONTROL KEY	-	-	1		
		6	SCREW TAPPING	TTB 3*10	SZN	5		
		7	CONTROL PLATE	PVC, t=0.3	SILVER	1		
		8	TFT LCD		LGPL	1		
		9	SHIELD PANEL	EGI, t=1.0	-	1		
		10	SCREW MACHINE	PB 3*8	SZN	4		
		11	SCREW TAPPING	TTB 3*10	SZN	8		
		12	SCREW TAPPING	BTB 4*12	SZN	4		
		13	SPEAKER	-	-	1		
		14	SCREW TAPPING	TTBW 3*6	SZN	16		
		15	MAIN BOARD	-	-	4		
		16	INVERTER	-	-	1		
		17	SCREW MACHINE	FTB 3*6	SZN	9		
		18	SHIELD COVER	EGI, t=0.8	-	6		
		19	SCREW MACHINE	FTB 3*6	SZN	4		
		20	SHIELD JACK	SPTH, t=0.3	-	1		
		21	SCREW MACHINE	FTB 3*6	SZN	3		
		22	REAR BODY	ABS/HIPS(VO)	SPRAY, M/GRAY	1		
		23	SCREW TAPPING	BTB 4*12	SZN	6		
		24	REAR PLATE	PVC, t=0.3	BLACK	1		
		25	STAND FRONT	ABS/HIPS(VO)	SPRAY, M/GRAY	1		
		26	BRKT STAND	EGI, t=2.0	-	1		
		27	SCREW TAPPING	TTB 3*10	SZN	2		
		28	STAND BOTTOM	ABS/HIPS(VO)	SPRAY, SILVER	1		
		29	BRKT BOTTOM	EGI, t=2.0	-	1		
		30	SCREW MACHINE	PS 3*10	SZN	2		
		31	SCREW TAPPING	PBTB 4*6	SZN	4		
		32	HINGE ASS'Y	-	-	1		
		33	SCREW MACHINE	PB 4*8	SZN	4		
		34	STAND REAR	ABS/HIPS(VO)	SPRAY, M/GRAY	1		
		35	SCREW TAPPING	BTB 4*12	SZN	3		
		36	SCREW MACHINE	PB 4*8	SZN	4		
		37	HINGE CAP	ABS/HIPS(VO)	SPRAY, M/GRAY	2		
		38	SCREW TAPPING	TTBW 3*6	SZN	2		







SYM	ZONE	DESCRIPTION REVISIONS	DATE	REVISED	APPROVED
⑤					
④					

	MOLD MAKER	INJECTION MAKER
MATERIAL	DR. DATE 2003.11.26.	TITLE
THIC	ENGR LEE D.B	
A???	CHK	DRAWING NO.
UNIT	APPD	
MODEL	APPD	SCALE N/S SHEETS 1/1